NIST-IR 6756

Electronic Book '99 Proceedings Second Annual Workshop: "The Next Chapter" Proceedings

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Thank you for coming!!

Thank you for participating in the second annual workshop on electronic books; *"Electronic Book '99: The Next Chapter"* sponsored by the National Institute of Standards and Technology (NIST), Technology Administration, U.S. Department of Commerce and the National Information Standards Organization (NISO). Last year, Raymond Kammer, Director of NIST, appealed to the electronic book industry to develop voluntary standards and interoperability for electronic content and electronic book reading systems. This year the industry, through the Open Electronic Book Initiative, heard the call. The "Next Chapter" theme for this conference focuses on standards and interoperability as well as gives the audience a snapshot of the business and technology drivers for electronic books. This is important as the market will drive a particular technology, which in turn will set the constrains for standards, test methods, and interoperability.

During the next two days, please take the opportunity to tour the laboratories of the Information Technology Laboratory, as well as take time to network with your colleagues. Please also attend the evening reception and exhibits at the Holiday Inn, the evening of September 21st. The Open Electronic Book Initiative Group will have their meeting following this conference on September 23rd at NIST in the Red Auditorium.

Again thanks goes out to all of the speakers and session chairs for their participation. I also want to commend the NIST management, in particular, Dean Collins, Gordon Lyon, and Bill Mehuron and the Technology Administration for their support of the workshop and research efforts here at NIST on electronic books. Thanks to Matt Heyman and Phil Bulman, Patrice Boulanger and Lori Phillips for their support - All of you were invaluable. All of the members of Division 895 and the Information Storage and Integrated Systems (ISIS) group are cited for their help and support. Finally, if you liked this effort, please let us know by writing or sending e-mail to: Director, NIST, 100 Bureau Drive, Gaithersburg, MD 20899.

Enjoy the conference!!!

Dr. Victor McCrary
Group Leader
Information Storage and Integrated Systems Group
National Institute of Standards and Technology

Electronic Book ’99: *The Next Chapter*

Program Agenda

Tuesday, September 21, 1999
8:00 a.m. – 8:15 a.m.
Dr. Victor McCrary
Group Leader, Information Storage and Integrated Systems Group,
National Institute of Standards and Technology
”Welcome to E-Book ’99"

8:15 a.m. – 8:30 a.m.
Dr. William Mehuron
Director, Information Technology Laboratory,
National Institute of Standards and Technology

8:30 a.m. – 9:00 a.m.
Raymond Kammer
Director,
National Institute of Standards and Technology

Overview of Electronic Books

Session Chair:
Dr. Victor McCrary
Information Storage and Integrated Systems Project,
National Institute of Standards and Technology

9:00 a.m. – 9:30 a.m.
Dr. Charles M. Geschke
President and Chairman of the Board,
Adobe Systems, Inc.
”E-Commerce Solution for Publishers”

9:30 a.m. – 10:00 a.m.
Dick Brass
Vice President for Technology Development,
Microsoft, Inc.
“The Future of Reading”

10:00 a.m. – 10:30 a.m. BREAK – MAIN CAFETERIA

KEYNOTE SPEAKER
10:30 a.m. – 11:00 a.m.
Robert L. Mallett
Deputy Secretary
U.S. Department of Commerce

Electronic Book Reading Systems

11:00 a.m. – 11:30 a.m.
Jim Sachs
Chief Executive Officer, SoftBook Press, Inc.
"Electronic Books — Year One in Review"

11:30 a.m. – 12:00 p.m.
Martin Eberhard
CEO and Cofounder, NuvoMedia
"The Rocket eBook '99"

12:00 p.m. – 12:30 p.m.
Don Bottoms
Co-founder of Librius.com
and Board Chairman, Librius
"E-Book Content - The Consumer's Rights"

12:30 p.m. – 1:00 p.m.
Daniel Munyan
President, Everybook Inc.
"Distribution Labyrinth to the 2 Minute Download"

1:00 p.m. – 2:00 p.m. LUNCH – MAIN CAFETERIA

Applications & Publishing Tools

Session Chair:
Dr. Joan Fuller,
Standards Reference Data Program,
National Institute of Standards and Technology

2:00 p.m. – 2:30 p.m.
Robert A. Kelly
Director, Journal Information Systems,
The American Physical Society
"Challenges in Publishing Physics Journals for a Reading System"

2:30 p.m. – 3:00 p.m.
Jayne E. Moore
Specialist, School Library Media Services
Maryland State Department of Education
"The E-book and K-12 Education: Making the Connection"

3:00 p.m. – 3:30 p.m.
Rich Lysakowski
Executive Director, Collaborative Electronic Notebook Systems Association (CENSA)
"eXceeding the eLimits on the eBook iWay"

3:30 p.m. – 4:00 p.m. BREAK – MAIN CAFETERIA

4:00 p.m. – 4:30 p.m.
Steve Potash
Chief Executive Officer, OverDrive Systems, Inc.
"Open eBook Authoring Tools and Processes for Commercial Title Production"

4:30 p.m. – 5:00 p.m.
Chris Pooley
President and Chief Executive Officer,
Books24x7.com
"Lessons in content Aggregation: How Publishers Can Profit from the Next Millennium's Most Important Trend in eBook Publishing"

5:00 p.m. – 5:30 p.m.
Sol Rosenberg,
President, Versabook Division,
Versaware Technologies, Inc.

7:00 p.m. – 10:00 p.m.
Cocktail Reception and Exhibits
Gaithersburg Holiday Inn

Wednesday, September 22, 1999

Accessibility & International Publishing

Session Chair:
Ms. Magdalena Navarro,
Office of International & Academic Affairs
National Institute of Standards and Technology

8: 00 a.m. – 8:30 a.m.
John Roberts
Program Manager,
National Institute of Standards and Technology
"A Novel Braille Reader for Electronic Books"

8:30 a.m. – 9:00 a.m.
George Kerscher
Research Fellow, Recording For the Blind & Dyslexic Project Manager to the DAISY Consortium
"Converging Standards = Access to Information by persons with Print Disabilities"

9:00 a.m. – 9:30 a.m.
Minoru Patrick Ohara
SSFDC Forum/Toshiba
"SmartMedia Market and Applications"

9:30 a.m. – 10:00 a.m.
Ralf Wirth
Head, Electronic Publishing
ECCE TERRAM, Germany
"The Market for Electronic Books in Germany"

10:00 a.m. – 10:30 a.m.
Bruno de Sa Moreira
General Manager of 00h00.com.
"On-Line Publishing: A European Perspective"

10:30 a.m. – 11:00 a.m. BREAK - MAIN CAFETERIA

New Technologies for E-Books

Session Chair:
Dr. Dean Collins
Chief, High Performance
Systems & Services Division,
National Institute of Standards and Technology

11:00 a.m. – 11:30 a.m.
Rocky Laroia
Manager of Strategy and Planning,
IBM Mobile Storage
"Hard Disk Drives in E-Books"

11:30 a.m. – 12:00 p.m.
Bob Stein
Chief Executive Officer, Night Kitchen
"New Tools for Electronic Publishing"

12:00 p.m. – 12:30 p.m.
Johann Bergquist
Former Senior Technology Analyst, Asian Technology Information Program
"Next Generation Display Technologies for Electronic Books in Japan"

12:30 p.m. – 2:00 p.m. LUNCH – MAIN CAFETERIA

Digital Rights Management

Session Chair:
Mr. Gabriel Hodziewich
St. Andrew's Episcopal School

2:00 p.m. – 2:30 p.m.
Richard Curtis
President, E-Rights
"Content Spoken Here"

KEYNOTE SPEAKER
2:30 p.m. – 3:00 p.m.
Harlan Ellison – Author, Fantasist

3:00 p.m. – 3:30 p.m.
Carol Risher
Vice President of Copyright and New Technology, Association of American Publishers
"E-Book Security Assessment —Responding to Concerns of Publishers and Authors"

3:30 p.m. – 4:00 p.m. BREAK – MAIN CAFETERIA

Digital Rights Management

Session Chair:
Mr. Ben Trafford,
Exemplary Technologies

4:00 p.m. – 4:30 p.m.
Dennis McNanney
Vice-President Product Development,
Infinite Ink Corp.
"The eBook Purchase from the Customer's Perspective"

4:30 p.m. – 5:00 p.m.
Len Kawell
President, Glassbook, Inc.
"EBX: An Open Electronic Book Copyright and Distribution System"

5:00 p.m. – 5:30 p.m.
Jon Schull
President, SoftLock.com
"E-Books and DRM: Which Digital Rights Need Managing Most?"

Wrap-Up

Thursday, September 23rd

Meeting of the Open Electronic Book Initiative Group

9:00 a.m. – 1:00 p.m.

Red Auditorium
National Institute of Standards and Technology

This meeting is open to all participants.

Electronic Book '99
Second Annual Workshop: The Next Chapter
September 21-22, 1999
National Institute of Standards and Technology, Gaithersburg MD

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Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dr. Victor McCrary

Group Leader

National Institute of Standards and Technology (NIST)

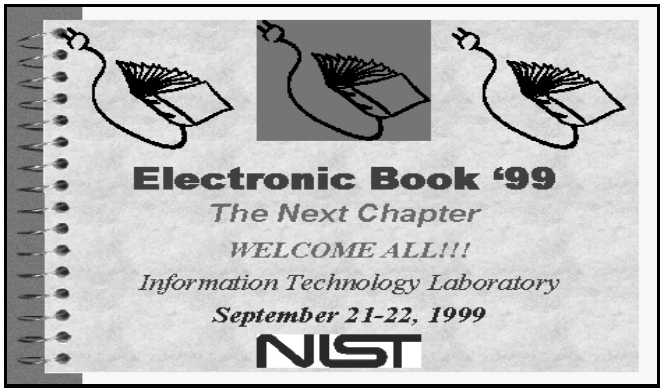
www.nist.gov

Dr. Victor R. McCrary is currently the Acting Chief of the High Performance Systems and Services Division at the National Institute of Standards and Technology in Gaithersburg, Maryland. In his current position, he leads a group of researchers and computer scientists in NIST's Information Technology Laboratory. His group is responsible for providing all data, telecom, and central computing resources to the 3,500+ NIST staff. His organization also conducts research in flat panel displays, high performance computing, network computing, scientific visualization, optical disk (DVD) storage and reliability, biometrics, electronic books, micro-e-commerce, HDTV, and image recognition. Dr. McCrary organized the world's first conference on electronic books in October 1998. His research group has developed a prototype of the electronic book, and is working on a Braille reader for electronic books. Concurrently, Dr. McCrary is an adjunct professor in the Executive Masters of Technology Management Program at the University of Pennsylvania. This program is jointly administered by the Graduate School of Engineering and the Wharton School of Business.

Dr. McCrary received his doctoral degree in 1985 from Howard University. He received an Executive Masters of Science and Engineering from the University of Penn-

sylvania in May 1995. Dr. McCrary has authored or co-authored over 40 technical papers in refereed journals and co-edited two books. In 1990, Dr. McCrary received the "Most Promising Engineer of the Year Award", presented by U.S. Career Communications and Mobil Oil Corporation, for his efforts in the field of semiconductor crystal growth. In March 1992, he received the "Pioneer of the Year Award" from the National Society of Black Engineers (NSBE) and the Motorola Company, also for his efforts in the field of semiconductor crystal growth. Dr. McCrary was selected in 1996 to the College of Distinguished Lecturers by Sigma Xi, the Scientific Society.

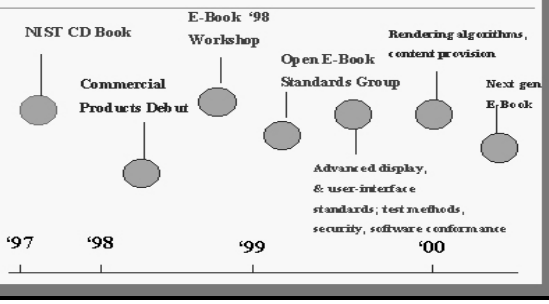
Victor's philosophy toward his work and his life is to keep your eye on the prize--whatever that may be, give your personal best at whatever you achieve, take risks, give lots of love to those who'll never know, and don't take yourself too seriously. "Always look to do the right thing, instead of doing things right!!!"



What a Difference a Year Makes!

- Industry working together on common standards for content,
- E-books more than hype, a number of early adopters,
- Many jumping in the pool!!

Electronic Book Industry - Projected Activities



E-Books: Why NIST ???

NIST

- 2-year R&D project: The NIST CD-Book
- Right time for ITL to assist this IT industry with the development of standards, test methods for inter-operability. Neutral vendor testbed
- Applications within NIST
- *We like to have fun!!*

Information Storage and Integrated Systems

Biometrics Test & Evaluation	Advanced Display Technology Systems	Advanced Digital Data Storage	Optical Information Processing & Transmission

Electronic Book Testbed

Goals:
Support the electronic book industry through the development of an electronic book reference testbed for conformance testing of standards developed by the Open Electronic Book Standards Committee, and to evaluate novel software enhancements (e.g. voice activation, video clips) for next generation electronic books.

Benefits:
Interoperable protocols supports all electronic publishing platforms for e-books, web-based media, & PDAs.

Customers:
Softbook, Nuvomedia, Microsoft, Librius, Everybook, Glassbook, Random House, Xerox, McGraw-Hill, Harper-Row, IBM

Project Milestones:
- Dec 98 Begin conversion from Visual Basic platform to standard HTML
- Feb 99 Open E-Book Stds. Meeting
- Jun 99 Braille software prototype
- Sep 99 E-Book II Workshop at NIST

Scope of NIST Research and Industry Efforts
Integrated System for Information Display

- Demonstrate a prototype electronic book; integrating display, storage, and rendering of text
  information ergonomics - usability & applications
- Work with the industry to facilitate the exchange of information and the development of standards
- Reference implementation for new technology & standards for portable electronic storage and display of information *3-5 years into the future*

Electronic Books:
NIST CD-Book

- ✓ Hard-disk storage/optical disk storage
- ✓ Touch sensitive, two screen color display
- ✓ PC Host
- ✓ Visual Basic/ Windows 98 OS

- ➢ Font re-sizing
- ➢ Word search
- ➢ Dictionary
- ➢ Highlighting
- ➢ Underlining
- ➢ Page turning at-a-touch
- ➢ *Voice Activation*

The Electronic Book:
Technical Specifications

- ✓ Display reflectivity ratio
- ✓ Total weight
- ✓ Power requirements
- ✓ Power dissipation
- ✓ Content format
- ✓ Storage media format
- ✓ Voice recognition error rejection ratio
- ✓ Display aspect ratio
- ✓ Software platform
- ✓ Content security, and integrity

NIST

Opportunities for new metrology, standards, and test methods !!

Electronic Book Data Transmission Project

Issue:

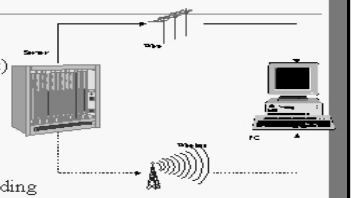
Down-loaders (Internet)

vs.

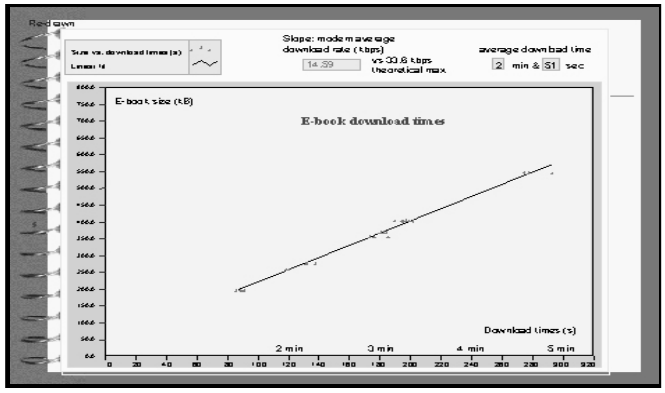
Inserters (DVD, etc)

Question:

Realistic time for downloading multimedia content ??



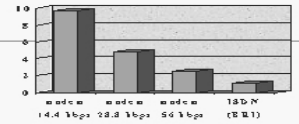
NIST



Download theoretical times

"Minutes" downloads (For a 5 MB file)

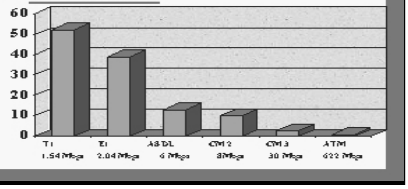
Download time (min)



Security and network congestion - not considered !!

"Seconds" downloads (For a 10 MB file)

Download time (sec)



NIST

Electronic Books: Bits over the Ether ?

WIRELESS

Mobile Wireless Access Technologies

	ISP support	Coverage	Throughput (without compression)	Overhead	Frequency
Cellular Digital Packet Data	70 %	99.9 % of metropolitan U.S.	19.2 kbits	10 to 19 kbits	1.9 GHz
Circuit-switched cellular	70 %	95 % of metropolitan U.S.	9.6 kbits	2.6 kbits	1.9 GHz
Personal Communications Services	10 %	100 % of North America	28.8 kbits	4 kbits	1.9 GHz
Private packet radio	5.15 %	93 % of metropolitan U.S.	4.8 to 19.2 kbits	1 to 4 kbits	1.9 GHz

NIST

Electronic Book Data Transmission Project:

Still more work!!

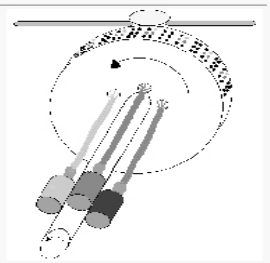
Determine
bit data rat

Test data t
emerge) w
E-book co

NIST

Internal actuators on shaft

- ✓ 12 actuators (2 cells) placed on rotating shaft
- ✓ Same pattern on every 2 cell group
- ✓ Text updates as wheel rotates
- ✓ User feels string of Braille characters with ***one finger*** !



Electronic Book '98 Workshop

Vision:

To bring people together from all corners of the world in order to facilitate the development of current and new reading appliance technologies. To discuss the need for voluntary standards to promote inter-operability across all electronic books platforms to insure wide and pervasive distribution of content.

NIST

Electronic Book '99 Workshop

Vision:

To bring people together from all corners of the world in order to facilitate the development of current and new reading appliance technologies. To discuss the need for voluntary standards to promote inter-operability across all electronic books platforms to insure wide and pervasive distribution of content.

NIST

Electronic Book '99 Workshop: *Discussion Topics*

- ✓ Applications - what do end-users want ??
- ✓ Accessibility - e-books for all readers
- ✓ Internalization - e-book markets abroad?
- ✓ New Technologies for e-books ?
- ✓ Digital Rights Management - next big issue, or not?
- ✓ Next set of standards ?

NIST

Electronic Book '99 Workshop:
Today and Tomorrow's Goals

- ✓ Stakeholders interact; especially end-users!!
- ✓ Identify technical challenges for next generation of electronic books
- ✓ Standards & inter-operability issues "put on the table" - look to avoid Beta vs. VHS debacle
- ✓ Identify role for NIST
- ✓ Let's have fun!

NIST

Plenty of Work to Go Around!!!

Needs
- Improved displays
- Integrate multimedia
- Lightweight batteries
- Security

NIST
- **ITL**: security, storage display perception, usability, software conformance
- **EEEL**: display contrast, wireless standards, flash memory
- **Physics**: colorimetry

ATP
Battery projects

Industry
- **New display technology**; (Kent, E-Ink, PixTech, VESA)
- **Rendering software**; (Versaware, Microsoft, Adobe)
- **XML, HTML formats**; (JStream, W3C)
- **Copyright**; (AAP, Tenth Mtn)

We Could Use Your Help !!!

- ✓ What trends do you see in the information appliance industry & what role can NIST play ?
- ✓ Are there other stakeholders besides the ones mentioned that we should include in our efforts ?

Electronic Books: It can happen if...

✓ **No Beta vs. VHS**

✓ ***"There is enough to go around for everybody"***

NIST

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dr. William O. Mehuron

Acting Director
Information Technology Lab

National Institute of Standards and Technology

www.nist.gov

Dr. William O. Mehuron was appointed the Acting Director of the Information Technology Laboratory of the National Institute of Standards and Technology (NIST) in April 1999. Previously, he has held a number of senior management and technical positions in the federal government (including civilian, defense, and intelligence agencies) and in high technology industries. In these positions, he has been responsible for research, development and acquisition of information systems, sensor and observing systems, and advanced electronic systems.

Joining NIST in 1999, Dr. Mehuron was responsible for the planning and execution of the information technology portion of the Advanced Technology Program, which combines technical, business, and economic objectives to foster growth of the Nation's economy. His portfolio included research and development in pervasive computing, computer security, digital video and signal processing for HDTV applications, image processing, communication and network technology, software engineering, and other information technology applications (such as e-commerce, health care informatics, and advanced learning systems). Dr. Mehuron was with the National Oceanic and Atmospheric Administration (NOAA) from 1995 until 1999 where he served as Director of the NOAA Systems Acquisition Office and as the Acting Deputy Undersecretary of NOAA from 1997 until 1998. During his tenure with NOAA, he directed the development and acquisition of major systems (information systems, satellite and radar systems, and a

variety of other sensor systems).

Earlier in his career, Dr. Mehuron was Deputy Director for Research and Engineering at the National Security Agency (NSA) where he was responsible for the research, technology, development, and systems acquisition programs of NSA. In addition to the in-house activities, he guided a substantial amount of work performed by the industrial base and academia. Working 20 years in the private sector, Dr. Mehuron held senior management positions with several advanced technology organizations. He was responsible for research and development efforts in a number of areas including: high-performance work stations, fiber optic networks, network management and security software, computer and communications security products and systems, automated message handling systems, integration of commercial off-the-shelf computer hardware and software, and computer-aided engineering (CAE) design software products and systems. Most recently, Dr. Mehuron was Vice President and General Manager of the Networks and Information Security Division at Unisys Corporation.

Dr. Mehuron received a B.S. in electrical engineering with distinction from Purdue University and an M.S.E.E. and Ph.D. from the University of Pennsylvania. He has also attended the Harvard University Executive Program in National and International Security and an Executive Management Program at the Wharton School of the University of Pennsylvania.

Dr. Mehuron was awarded the Distinguished Presidential Rank Award for excellence in system acquisition management and leadership while at the National Security Agency and the National Security Agency's Exceptional Civilian Service Award for extraordinary performance and exceptional accomplishment, leadership, and personal dedication to the furtherance of the NSA mission. Further, he was awarded the Distinguished Engineering Alumnus Award from Purdue University in 1991 for outstanding engineering accomplishments in the military, government, and private industry. He is a member of the Institute of Electrical and Electronic Engineers (IEEE).

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Raymond Kammer

Director
National Institute of Standards and Technology (NIST)

www.nist.gov

Raymond Kammer was nominated by President Clinton on September 4, 1997, to serve as Director of the National Institute of Standards and Technology. After being confirmed by the U.S. Senate, he took office on November 12. An agency of the U.S. Commerce Department's Technology Administration, NIST promotes U.S. economic growth by working with industry to develop and apply technology, measurements, and standards. As NIST Director, Mr. Kammer oversees a staff of approximately 3,300 and a budget of about $700 million. More than half of the staff is composed of scientists and engineers located at the NIST campuses in Gaithersburg, Maryland, and Boulder, Colorado.

Most recently, Mr. Kammer served on an acting basis as the Chief Financial Officer, the Assistant Secretary for Administration and the Chief Information Officer for the Department of Commerce. As Deputy Director of NIST from 1980 to 1991 and 1993 to 1997, Mr. Kammer was responsible for the day-to-day operation of the Institute and for long-range planning and policy development. The primary mission of NIST is to strengthen the U.S. economy and improve the quality of life by working with industry to develop and apply technology, measurements, and standards. It carries out this mission through a portfolio of four major programs: Measurement and Standards Laboratories - that provide technical leadership for vital components of the nation's technology infrastructure needed by U.S. industry to continually improve its products and services; The Advanced Technology Program - accelerating the development of innovative technologies for broad national benefit through R&D partnerships with the private sector;

A grassroots Manufacturing Extension Partnership with a network of local centers offering technical and business assistance to smaller manufacturers; And a highly visible quality outreach program associated with the Malcolm Baldrige National Quality Award that recognizes business performance excellence and quality achievement by U.S. manufacturers, service companies, educational organizations, and health care providers.

From 1991 to 1993, Mr. Kammer was Deputy Under Secretary of Commerce for Oceans and Atmosphere in NOAA. In that position, he served as NOAA's Chief Operating Officer and was responsible for overseeing the technical projects of this $2 billion agency which has a staff of over 14,000. NOAA has five major programs - the National Weather Service; the National Marine Fisheries Service; the National Environmental Satellite, Data, and Information Service; the National Ocean Service; and the Office of Oceanic and Atmospheric Research.

Mr. Kammer began his career with the Department of Commerce in 1969 as a program analyst. Prior to his appointment as Deputy Director of NIST, Mr. Kammer held a number of positions at NIST and in the Department of Commerce involving budgetary and program analysis, planning and personnel management. During his tenure as Deputy Director, he also held positions as Acting Director of NIST, Acting Director of the National Measurement Laboratory at NIST, and Acting Director of the Advanced Technology Program at NIST.

Mr. Kammer has chaired several important evaluation committees for the Department of Commerce, including reviews of satellite systems for weather monitoring and the U.S. LANDSAT program, and of the next generation of weather radar used by the U.S. government. He also served on the Board of Directors of the American Society for Testing and Materials, a major international society for the development of voluntary standards for materials, products, systems, and services.

His awards include both the Gold and Silver Medals of the Department of Commerce, the William A. Jump Award for Exceptional Achievement in Public Administration, the Federal Government Meritorious Executive Award, and the Roger W. Jones Award for Executive Leadership.

Mr. Kammer received his Bachelor of Arts degree from the University of Maryland in 1969.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dr. Charles M. Geschke

Co-Founder, President and Chairman of the Board

Adobe Systems, Inc.

www.adobe.com

Charles Geschke co-founded Adobe Systems in 1982 with John Warnock. A respected and inspiring leader in the software industry for more than 25 years, Geschke is president of Adobe and shares the chairmanship of the board with Warnock. Many industry and business leaders have honored Geschke for his outstanding technical and managerial achievements including the Association for Computing Machinery (ACM), Carnegie-Mellon University, the National Computer Graphics Association, and the Rochester Institute of Technology.

Geschke actively participates on several boards of high technology companies, educational institutions and arts organizations. He is a member of the National Academy of Engineering, the Government-University Industry Research Roundtable of the National Academy of Sciences and the Board of Governors for the San Francisco Symphony. He also serves on the computer science advisory boards of Carnegie-Mellon University and Princeton University, the Board of Trustees for the University of San Francisco and the Boards of Directors of PointCast, Inc. and Rambus, Inc. Prior to co-founding Adobe Systems, Geschke formed the Imaging Sciences Laboratory at Xerox Palo Alto Research Center (PARC) in 1980, where he directed research activities in the fields of computer science, graphics, image processing, and optics. Previously, he was a principal scientist and researcher at Xerox PARC's Computer Sciences Laboratory. Geschke holds a Ph.D. in computer science from Carnegie-Mellon University and a M.S. in mathematics and a B.A. in classics, both from Xavier University.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dick Brass

Vice President, Technology Development

Microsoft Corporation

www.microsoft.com

Dick Brass is the vice president of technology development at Microsoft Corp's research division. His responsibilities include organizing and executing Microsoft's effort in the emerging of field of electronic book software and "eBook" devices.

Prior to joining Microsoft in November 1997, Brass served eight years at Oracle Corp. – first as President of Oracle Corp.'s Data Publishing subsidiary, and then as Oracle's Senior Vice President for Corporate Affairs. In the mid 1980s, Brass founded General Information, Inc., which produced some of the first software telephone directories, as well as popular business directories in print form.

Brass is perhaps best known for developing the first dictionary-based spelling checking software, as well as the first electronic thesaurus—*The Random House Electronic Thesaurus*—in 1981. His firm, Dictronics Publishing, acquired the exclusive electronic rights to many of the world's most important reference works, including *The Random House Dictionary, Roget's International Thesaurus*, *Black's Law Dictionary*, the *Chicago Manual of Style,* and similar works abroad. Wang Laboratories purchased Dictronics in 1983, and Brass then served as Director of Electronic Publishing at Wang.

In the 1970's, Brass was Features Editor of *The Daily News* in New York City. He also reported for WNBC-TV, *The Wall Street Journal* and the *New York Post*. Brass attended Cornell University. He is 47 and lives in Seattle with his wife, Regina, a physician.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Robert L. Mallett

Deputy Secretary of Commerce

www.osecnt13.osec.doc.gov/public.nsf

Robert L. Mallett is Deputy Secretary, U.S. Department of Commerce, the second-highest position in the agency. He was nominated by President Clinton on June 11, 1997, and was confirmed by the United States Senate on September 26, 1997. As Chief Operating Officer for the Department of Commerce, Mr. Mallett is responsible for the day-to-day operations of a very diversified cabinet-level Department within which there are nine agencies which collectively have 40,000 employees and a $5 billion budget. A representative sample of some of the diversity within the Commerce Department includes the International Trade Administration, the Bureau of the Census, the National Weather Service, the Patent and Trademark Office, and the Economic Development Administration.

In addition to providing leadership and direction for the most diverse cabinet Department in the government, Mr. Mallett plays a lead role in promoting full market access for American companies in countries around the globe. He has a special interest in promoting small, medium-sized and women-owned businesses, both in international trade and in domestic procurement opportunities, and in the development of both domestic and international commercial standards. He also implemented several management initiatives to improve government operations, make government contracting opportunities more available to small businesses, and make the Department more efficient and user friendly.

Prior to coming to the Department of Commerce, Deputy Secretary Mallett prac-

ticed law as an associate and as a shareholder at major law firms, and served City Administrator and Deputy Mayor for the nation's capital under Mayor Sharon Pratt Kelly.

Deputy Secretary Mallett is involved in many civic activities and serves on the board of directors of the Overseas Private Investment Corporation (OPIC), a federal agency which helps less developed nations expand their economies and become valuable markets for U.S. goods and services. He is Chairman of the Board of Governors of the Wesley Theological Seminary in Washington, D.C., and a member of the historic Asbury United Methodist Church in Washington, D.C., where he serves as an usher and was formerly Chairman of its Board of Trustees.

A member of Phi Beta Kappa and 1979 magna cum laude graduate of Morehouse College, Deputy Secretary Mallett studied law at Harvard Law School where he served as project director for the Harvard Civil Rights-Civil Liberties Law Review. After graduation, he clerked for the late John R. Brown, U.S. Court of Appeals, Fifth Circuit. He later served for four years as Legal Counsel to former U.S. Senator Lloyd Bentsen.

For several years, Deputy Secretary Mallett served as an adjunct professor of law at the Georgetown Law Center and the Georgetown Graduate Public Policy Program. He resides in Washington, D.C., with his wife Terri and son Michael.

Electronic Book '99

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September 21-22, 1999

Gaithersburg, MD

James Sachs
Chairman, CEO
SoftBook Press, Inc.

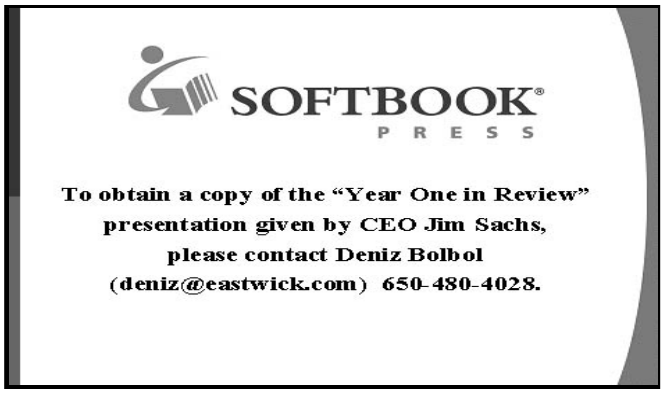
www.softbook.com

James Sachs, Chairman & Chief Executive Officer Mr. Sachs has 20 years of experience in product development, and is best known as a co-designer and patent holder of the Macintosh mouse, which has since become the reference design for PC mice today.

Prior to founding SoftBook Press, Mr. Sachs was vice president and general manager of the technology group of Hasbro, Inc. where he created the company's preschool multimedia software business and developed several popular software titles. He has also held top managerial and product development positions at Worlds of Wonder, Inc., where he managed the development of more than 60 high-volume consumer electronic products and toys, including Teddy Ruxpin, the best-selling animated talking product in history.

He co-founded Personal Robotic Company, Elfin Technologies and was an original principle of what has become IDEO, the nation's leading product development company. All told, he has been responsible for the development of more than 100 high-volume consumer electronic and industrial products.

Mr. Sachs received a bachelor's degree in engineering from University of Michigan and a master's of science degree in smart product design from Stanford University.


SOFTBOOK®
PRESS
To obtain a copy of the "Year One in Review"
presentation given by CEO Jim Sachs,
please contact Deniz Bolbol
(deniz@eastwick.com) 650-480-4028.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Martin F. Eberhard

CEO and Co-Founder of Nuvo Media

www.rocket-ebook.com

Martin F. Eberhard, CEO and Cofounder of NuvoMedia, has worked in the exciting startup environment of Silicon Valley since 1983, when he earned his Bachelor of Science in Computer Engineering and his Master of Science in Electrical Engineering from the University of Illinois.

Prior to NuvoMedia, he was an Engineering Manager at Wyse Technology when they went public in 1986, and a cofounder and Chief Engineer at Network Computing Devices when they went public in 1991. Eberhard also served as VP of Engineering at another startup company, Belfort Memory International.

After 14 years working for pure-technology companies, Mr. Eberhard and his colleague, Marc Tarpenning, founded NuvoMedia to combine their expertise in technology with their love of reading.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

NIST

Gaithersburg, MD

Don Bottoms

Board Chairman

www.librius.com

Mr. Bottoms is a co-founder of Librius.com and Board Chairman. He has also served as company president. Prior to founding Librius.com, Mr. Bottoms was a co-owner and US Managing Director for C2C Systems Inc., a company specializing in Internet e-mail networks. Mr. Bottoms was also instrumental in the growth of Attachmate Inc., now the world largest privately held software company, from a startup to a $125 Million annual revenue, worldwide business. At Attachmate he held several key management positions, including President and COO, and President of Attachmate International Sales Corporation., where he established and managed sales and support companies for Attachmate in several European countries.

He has also founded and operated a successful PC consulting and reseller business and held various executive management positions with Masstor Systems Corporation, Informatics, Unisys and RCA. Besides sales, marketing and general management experience, Mr. Bottoms has extensive technical experience in the design of data communications and networking systems. He has managed several large computer systems design and implementation projects, including the California Law Enforcement Telecommunications System, large scale database design projects for Bank of America and communications systems for The Walt Disney Company.

Mr. Bottoms holds a Bachelor of Science degree in Marketing and Human Resources from the University of Southern California, with a Beta Gamma Sigma honorarium.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Daniel Munyan

Founder, President
EveryBook, Inc.

www.everybook.net

Daniel Munyan is the President and Founder of Everybook, Inc., of Middletown, Pennsylvania. Everybook was founded in 1995, and has been in development since May, 1996.

Daniel holds the U.S., Canadian, Australian, and Russian patents on the EB Dedicated Reader™, which is the only two-screen, facing portrait-page electronic book system. His patent is currently under application in more than 35 countries worldwide.

Daniel was the Director of Information Systems for the Pennsylvania Credit Union League from 1986 until 1996. He graduated with an MBA from Bloomsburg University of Pennsylvania in 1986. Daniel's thesis was an examination of the economic viability of recovering aluminum from the fly ash of coal waste cogeneration in Pennsylvania.

Daniel received his Bachelors degree in Geology and Earth Science from Millersville University of Pennsylvania in 1984. He served in the Cavalry of the U.S. Army before entering college.

Daniel lives in Lancaster County, Pennsylvania with his wife Leslie, daughter Emma, and son Simon.

Everybook, Inc.
A Living Library in a Single Book

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Electronic Books:
From Distribution Labyrinth to the 2-Minute Download

2

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Electronic Books:
From Distribution Labyrinth to the 2-Minute Download

2

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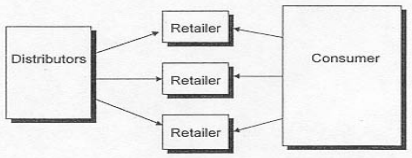
Traditional Publication Distribution



6

Everybook, Inc.
A Living Library in a Single Book

Major Book Distributor Costs

- Packaging
- Shipping
- Receiving
- Storage

Distributor Costs = 10% - 15% of List Price

9

Everybook, Inc.
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Distributor Discount

Discount off list price by type

Book Clubs	70%
Wholesalers	50%+
Retail Chains	45-50%
Independent Retailers	40%+

10

Everybook, Inc.
A Living Library in a Single Book

Distributor Discount

Discount off list price by type

➢ Book Clubs	70%
➢ Wholesalers	50%+
➢ Retail Chains	45-50%
➢ Independent Retailers	40%+

Everybook, Inc.
A Living Library in a Single Book

Major E-Commerce Website Costs

- ➢ Software Development
- ➢ Hardware Development
- ➢ Programmers
- ➢ Service Staff
- ➢ Credit Card Processors
- ➢ Bandwidth Charges

Everybook, Inc.
A Living Library in a Single Book

Thank you!

Please contact us:info@everybook.net
Visit our Web site: www.everybook.net

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Robert A. Kelly

Director
Journal Information Systems
The American Physical Society

www.aps.org

Bob is a thirty-year veteran from IBM service business, with his last ten years at IBM dedicated to e-publishing. He managed IBM's, English language, and publications operations for print purchasing, inventory management and ordering, on a worldwide basis. He was part of the team that brought the IBM BookManager product line to market and his people implemented the first IBM e-publishing operation for IBM publications.

In 1993, he joined the American Physical Society, to manage the journals I/T operation and develop the strategy to deliver Physical Review Letters, on-line.

Since 1993 he has managed the successful migration of all seven APS journals to the Internet and has brought a new journal, all electronic, to life, along with an on-line archive going back to 1985 and eventually to 1893 of all of Physical Review.

Bob's strategy for the APS journals is to build a menu of services wrapped around the APS collection of articles going from a moving present back to 1893. The services will include the integration and connection of the many web based databases that are specific to the disciplines covered by Physical Review and the delivery of articles in current and emerging formats.

Challenges in Publishing Physics Journals to a "Reading System"

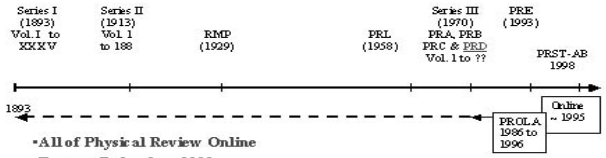
$$F(w) = \frac{jq}{\pi\beta}\sum_{n=1}^{\infty} F_n\,\varphi_n(w) = \frac{jq}{\pi\beta}\,F^{T}\,\Phi(w),$$

Electronic Book '99
September 21 & 22, 1999

Robert A. Kelly
Director Journal Information Systems
The American Physical Society
rakelly@aps.org

Physical Review

1893 - 640 pages, 1999 ~ 94 K pages, ~ 2M pages in total



- All of Physical Review Online
- Eventually back to 1893
- Inter linked with other collections
- Content format varies over time - image, pdf, postscript to SGML / XML
- Provide format options to take advantage of technology

Scientific & Technical Publishing (Communication)

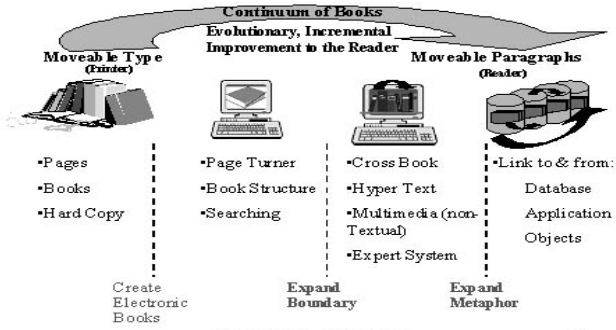
- **Reading & Writing are the primary communication tools - very large world wide community of physicists, mathematicians, chemists, students, etc.**
- **Large percentage of non-textual elements; mathematics and symbols**
- **Multimedia is an emerging requirement**
- **The challenge is typographical**

$$\frac{jq}{\pi\beta}\sum_{n=1}^{\infty} F_n \int_0^{\infty} w\sqrt{w^2 - k^2}\;\varphi_n(w)\,J_1(wr)\,dw = A\,K_1(\kappa r).$$

- Multiple authoring tools; Mathematica, TeX, MS Equation Editor, etc.
- Multiple SGML Math fragments; ISO12083, AARP, etc.
- GIF unacceptable for online delivery
- PDF ok for equations but not for advanced linking and articles that can not be printed

Requirements

- Enable non-textual content; equations, video, sound, applets
- pdf until equations, etc., are enabled via XML
- Publisher provided XML
- WWW accessible
- Bookshelf (collection) searching and linking



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Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Jayne Moore

State Specialist
School Library Media Services
Maryland State Department of Education

www.msde.state.md.us

A Specialist in School Library Media for the Maryland State Department of Education, Jayne Moore works with local school systems on a variety of library media and technology issues and provides instruction in the use of telecommunications to staff at the Maryland State Department of Education.

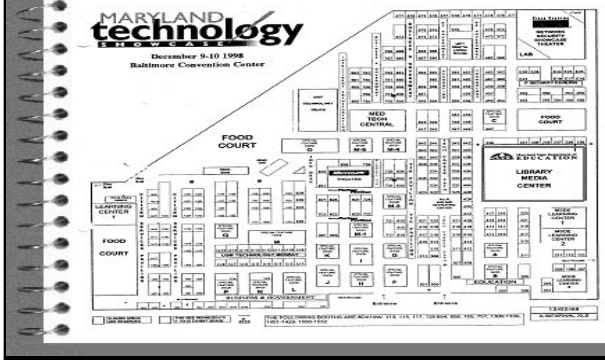
Ms. Moore has been an educator for 28 years. in Delaware, Georgia, and Maryland and a telecommunications trainer for educators for the past several years. As a library media specialist in a 7-12 high school in Talbot County, MD before coming to the Maryland State Department of Education, Ms. Moore was responsible for managing the library media center, instructing all students in the use of a variety of technologies, providing staff development for teachers and administrators, and offering workshops for community members to learn a variety of technology applications.

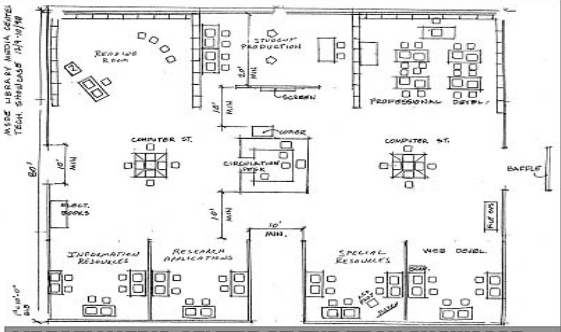
A key focus in her work with teachers and students has been the application of technology and the integration into instruction. Ms. Moore headed the St. Michaels High School Technology Committee, which determined policies and management of a variety of technology issues within the school setting. In addition, she served on the Talbot County Schools Technology Committee, helping to shape the direction of technology development within that county. Ms. Moore has a B.A. in English from the University of Delaware, and an M.Ed from Salisbury State University.

The E-book and K-12 Education

Making the Connection

Presented by Jayne Moore
MD State Dept. of Education
School Library Media Services Branch



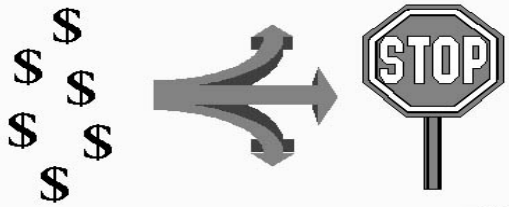


LIBRARY MEDIA CENTER AT THE TECH SHOWCASE

Turning a dream into a reality!

NIST

OBSTACLE!



TIIAP

TELECOMMUNICATIONS &
INFORMATION
INFRASTRUCTURE
ASSISTANCE
PROGRAM

GOAL

- **TO INCREASE STUDENT PERFORMANCE**

RESOURCES

- **TEXTBOOKS**
- **MATERIALS**
  - **SCHOOL LIBRARY**
  - **PUBLIC LIBRARY**
- **INTERLIBRARY LOAN**
- **INTERNET**

GOAL

- **TO INCREASE STUDENT PERFORMANCE**

CHALLENGES

- **BUSY STUDENTS**
- **STUDENT LEARNING STYLES**
- **CURRICULAR NEEDS**
- **EQUITY OF ACCESS**

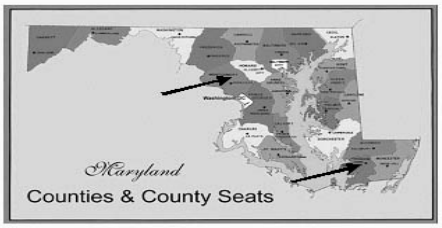
PROJECT GOALS

- **EDUCATIONAL EFFECTS**
- **EVALUATION OF THE E-BOOK TO REFINE THE TECHNOLOGY**

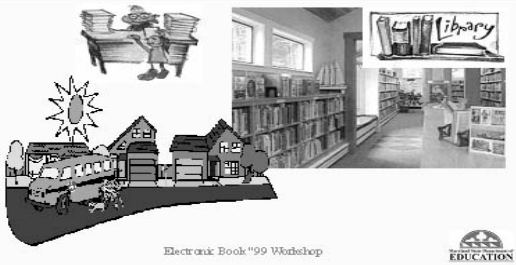
PROJECT GOALS

- EDUCATIONAL EFFECTS
- EVALUATION OF THE E-BOOK TO REFINE THE TECHNOLOGY
- STRATEGIC PLANNING

MARYLAND PILOT



ACCESS



SCHOOL RESOURCES

TEXTBOOK

NONFICTION

PERIODICALS

NOVELS

REFERENCE

ORIGINAL MATERIALS

SCHOOL RESOURCES

TEXTBOOK

NONFICTION

PERIODICALS

NOVELS

REFERENCE

ORIGINAL MATERIALS

TEACHER AND STUDENT CREATED MATERIALS

MEASURABLE OUTCOMES

- INCREASED
  - STUDENT PERFORMANCE
  - HOMEWORK COMPLETION RATE
  - CIRCULATION OF LIBRARY BOOKS
- IMPROVED
  - READING STRATEGIES
  - TEACHER LESSON PLANS
  - STUDENT DISCIPLINE

EVALUATORS

- MSDE
- TEMPLE UNIVERSITY
- LIBRARY MEDIA SPECIALISTS
- STUDENT INTERNS

POPULATION TARGETS

- PRINCIPALS
- LIBRARY MEDIA SPECIALISTS
- TEACHERS
- STUDENTS

EVALUATION COMPONENTS

- EDUCATIONAL OUTCOMES (STUDENT ACHIEVEMENT)
- ELECTRONIC BOOK DATA
- E-BOOK IN THE EDUCATIONAL SETTING

ASSESSMENT

EVALUATIONS WILL BE:

- FORMATIVE AND SUMMATIVE
- QUALITATIVE & QUANTITATIVE
  - SURVEYS - INTERVIEWS
  - JOURNALS - FOCUS GROUPS
  - STATISTICAL DATA

ASSESSMENT

EVALUATIONS WILL BE:

- FORMATIVE AND SUMMATIVE
- QUALITATIVE & QUANTITATIVE
  - SURVEYS - INTERVIEWS
  - JOURNALS - FOCUS GROUPS
  - STATISTICAL DATA

DATA COLLECTION – STUDENT ACHIEVEMENT

- STUDENT GRADES
- SAMPLES OF STUDENT WORK
- SURVEYS
- HOMEWORK COMPLETION RATE
- SCHOOL ATTENDANCE
- LIBRARY CIRCULATION STATISTICS
- STUDENT PERFORMANCE

DATA COLLECTION – STUDENT ACHIEVEMENT

- STUDENT GRADES
- SAMPLES OF STUDENT WORK
- SURVEYS
- HOMEWORK COMPLETION RATE
- SCHOOL ATTENDANCE
- LIBRARY CIRCULATION STATISTICS
- STUDENT PERFORMANCE

DATA COLLECTION – STUDENT ACHIEVEMENT

- QUALITY & QUANTITY OF AVAILABLE RESOURCES
- QUALITY OF TEACHER LESSON PLANS
- ATTITUDINAL RESPONSES

DATA COLLECTION – STUDENT ACHIEVEMENT

- QUALITY & QUANTITY OF AVAILABLE RESOURCES
- QUALITY OF TEACHER LESSON PLANS
- ATTITUDINAL RESPONSES

DATA COLLECTION – E-BOOK TECHNOLOGY

- CLARITY OF TEXT
- COMFORT OF USE
- SPECIAL FEATURES
- DURABILITY
- TIME TO DOWNLOAD

DATA COLLECTION – E-BOOKS IN THE SCHOOLHOUSE

- APPLICATION STRATEGIES (LOGISTICAL)
- INSTRUCTIONAL APPROACHES

ANTICIPATED FINDINGS – E-BOOKS IN THE SCHOOLHOUSE

- GREATER STUDENT LEARNING
- GREATER STUDENT MOTIVATION
- COST EFFECTIVENESS
- JUST-IN-TIME ACCESS TO MATERIALS
- ELIMINATION OF MULTIPLE HEAVY BOOKS

? ? ? ?

EVALUATION

- GOALS, OBJECTIVES, AND MILESTONE MET?
- UNEXPECTED BENEFITS OR PROBLEMS?
- COST EFFECTIVE?
- APPROPRIATE TECHNOLOGY?
- STUDENT/TEACHER REACTION?
- POSITIVE IMPACT ON STUDENTS?

PARTNERS

Temple University · LSS · SOFTBOOK PRESS · NIST · Maryland State Department of EDUCATION · MCPS · Damascus High School · Washington Math School

PARTNERS

TRADE / TEXTBOOK PUBLISHERS

NIST

NATIONAL MODEL

$$$$

PARTNERSHIPS

ALL STAKEHOLDERS

Maryland State Department of EDUCATION

More To Come!

The End

(For Now)

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dr. Rich Lysakowski

President and Executive Director of the Collaborative Electronic Notebook Systems Association (CENSA)

www.teamscience.com

Rich Lysakowski is President and Executive Director of the Collaborative Electronic Notebook Systems Association (CENSA). His responsibilities include organizing and executing CENSA's efforts to develop robust markets and products for advanced automation for R&D, including electronic notebook systems, intelligent project support environments and their many component technologies. In 1998, he initiated the Global Industry-Interagency Group on Electronic Recordkeeping and Digital Archiving Systems, a collaborative group of regulatory agencies, patent offices, and global industries worldwide with a mission to create consensus specifications for creation, management, access, and long-term preservation of electronic records and digital archiving systems. CENSA and this group are now doing a broad and deep survey and critical analysis of relevant regulations, standards, specifications, research reports, and products, and will issue its initial recommendations and specifications on electronic recordkeeping and digital archiving systems in early 2000.

Dr. Lysakowski has 20 years professional experience working with automation systems and laboratory instruments in various scientific, software engineering, marketing, and project management roles, in the private and public sector. He is a frequent speaker and trainer on R&D automation systems at meetings and conferences through-

out the world. He has a Ph.D. in Physical and Analytical Chemistry, with a specialization in laboratory automation. He is a member of the American Society for Association Executives (ASAE), the Administrators and Records Managers Association (ARMA), the American Chemical Society (ACS), the IEEE Computer Society, the Intellectual Property Owners Association (IPO), and the Special Libraries Association (SLA).

"eXceeding the eLimits on the eBook iWay"

Dr. Rich Lysakowski, Executive Director
Collaborative Electronic Notebook Systems Association
800 West Cummings Park, Suite 5400, Woburn, MA 01801
781-935-9600 phone; 781-935-3113 fax
E-mail: info@censa.org;
Web: www.censa.org

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Take-Home Messages

- eBooks and eNotebooks are one
- CENSA is anticipating the longer term eBook legal issues with eNotebooks
- eNotebooks offer huge benefits to authors of authenticated records
- Maxims for Maximum Success

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eBooks :== Authenticated Records

- A Book is a Record of Intellectual Work
- Authenticity is Fundamental to Credibility
- Protecting Uniqueness is Key to Success
- Long-term Preservation and Access are Key to Consumer Acceptance

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Types of Records

- Database "Record" - Data transacted in DBMS (not the same as a legal record)
- Regulatory Records - needed for at least 25 years; (for compliance evidence & prosecution purposes)
- Patent Records - needed for at least 35 years (for infringement and interference evidence)
- Trade Secret Records - held as long as business wants to sell product line (often for company lifetime)

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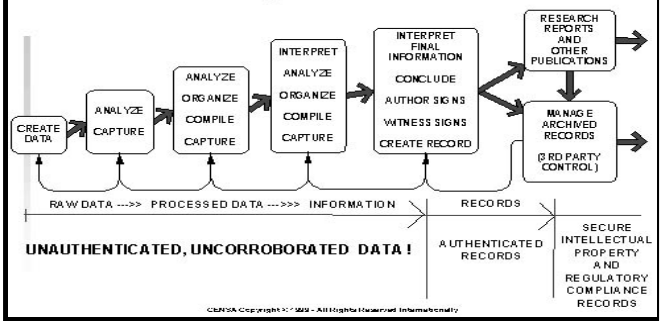
Making Records from Data



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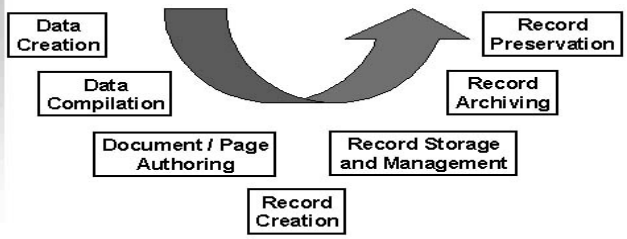
Electronic Records Lifecycle



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Paper Recordbooks Are Obsolete !!

- Information Is Lost: Not Easily Searched or Shared
- Data Capture Is Archaic: Scissor & Tape, Cut & Paste
- Small Capacity: Cannot Handle Terabytes of Data Generated by Modern Experiments
- Use is Repetitive & Tedious: Date-Time Stamping, Witnessing, Building Indexes & Table of Contents
- Reuse Is Tedious: Involves Rekeying Protocols, Data & Parameters

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Qualititative and Quantitative Losses in Productivity

- Recoverable mechanical losses range to over 50%
- Very bright, expensive people are losing prime time
- Bright people are tied up with menial activities
- Collaborative capabilities are very bad with paper
- Vital Records are unprotected and lost
- Poor Quality Data Forces Experiments to Be Redone
- Cannot Find Old Work, Forces Significant Rework

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Major e-Recordkeeping Benefits

- Cut Lost Opportunity Costs Due to Lost Records
- Stop Repeating Work due to Lost Information
- Better, Faster, Easier Litigation for Plaintiffs
- Better Decision-Making Processes
- Reduce Errors via Better Quality Data Entry
- Perform Quality Assurance More Easily

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Crisis in Corporate Science

- **Computers are automating all sciences**
- **Data volumes are increasing exponentially**
- **Data are not equivalent to legal records**
- **Paper bottlenecks are increasing daily**
- **No Universal Preservation eFormat exists**
- ***IT must meet the needs of archivists***

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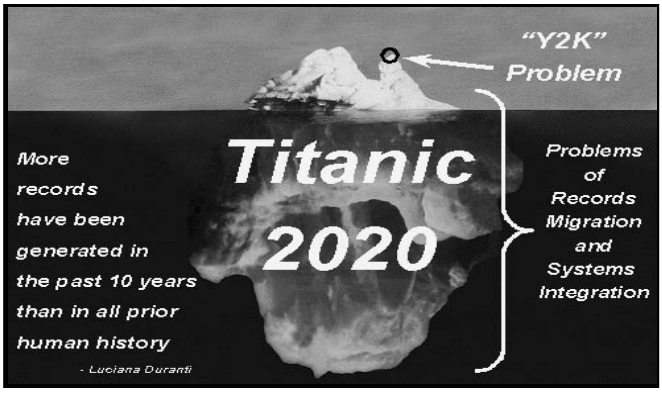

Cost to User Base for Office95/Office97 Incompatibility

Assumed Quantities	Units
100,000,000	users
10	Minutes Lost on Average User Per Week in the First Year
5	Minutes Lost on Average User Per Week in the Second Year
1	Minutes Lost on Average User Per Week in the Third Year
711,111	TOTAL Work-Years Lost in the Three Year Period
$ 110,000.00	Loaded Annual Headcount Cost Per User:
25.00%	Percentage of Upgrades by End of First Year
75.00%	Percentage of Upgrades by End of Second Year
99.00%	Percentage of Upgrades by End of Third Year
$ 42,826,666,666.67	***TOTAL LABOR COSTS (for 3 years of incompatibility)***
$ 80.00	Cost to Purchase Competitive Upgrade:
$ 8,080,000,000.00	***TOTAL DIRECT TO USERS (Total Revenue to Vendor)***
$ 50,906,666,666.67	TOTAL COST TO USER COMMUNITY

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The Crisis is Rapidly Accelerating

- Records creation rates will keep accelerating!!!
- Software systems do NOT address major *RECORDKEEPING* design issues:
  - user authentication and trusted time-stamping
  - secure audit trailing
  - permanent records preservation and acce
  - interoperability
  - systems migration

- We're increasingly dependent on software systems that are not reliable from a legal perspective

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Growing Dependency on Complex Technologies

- **Digital Signatures (and their migration)**
- **Public Key Infrastructure (PKI)**
- **The Internet and World Wide Web**
- **Complex Compound Documents & Data Sets**
- **Portable Document Formats**
- **Electronic Record Formats** (future)

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The Inevitable

- People Crack Encryption Keys
- People Lose Their Encryption Keys
- Public Key Infrastructure Becomes Widely Used (??)
- Vendors We Depend Upon Enter and Leave the Market
- Vendors "Innovate" and Make Products Incompatible
- Computer Hardware Get Cheaper and Obsolete Faster

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The Inevitable (Cont.)

- Recordkeeping Problems Exceed Our Ability to Solve
- Government Regulations on e-Records Will Grow
- Hackers/Terrorists Target Recordkeeping Systems as an Act of Warfare or Competition
- We Must Be Much More Proactive By:
  - changing system design centers
  - changing consumer buying behaviors

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Solving "Titanic 2020" Proactively

- **"Design for Migration"**
  - Portable Data, Documents, Records, Metadata, Indexes
  - Interoperable Record Authentication Certificates
  - Lightweight Directory Access Protocol (LDAP)
  - PDF, (XML?), (SVG?), (PRF?), other Web protocols

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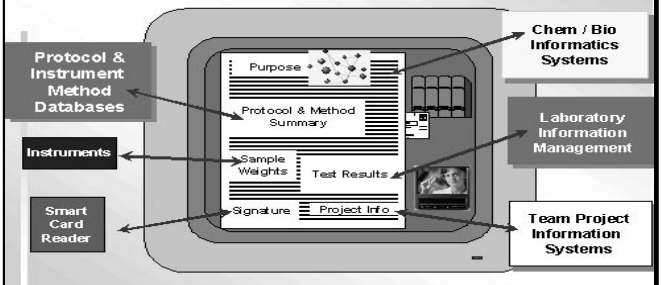
Collaborative Electronic Notebook Systems (CENS)



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An Electronic Notebook System

is a specialized authoring and recordkeeping system that

- *Is a publishing system for data from 100s of sources*
- Creates, secures, and protects intellectual property
- Helps to demonstrates regulatory compliance
- Feeds data and records into regulatory submissions
- Will feed and access huge heterogeneous R&D object warehouses containing data, documents, and records
- Provides global access to data, records, and results
- Will allow unprecedented levels of knowledge mining and R&D intellectual capital utilization

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Near-Future Electronic Notebooks

- Wireless handheld and pen computers
- High-speed Voice, Video, & Data Streams
- Full-speed handwriting to text conversion
- Flawless speech to text conversion
- Infrared or RF data transfer to/from instruments and all other lab devices
- Intelligent Agents and Assistants
- Ubiquitous Recordkeeping
- Interoperable cell phones, computers, Web, voice / video recorders, data management, and recordkeeping systems

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Tunes in the E of Life

eBooks
eNews
eCash
eMarketplaces
eConferences
eTV
eMusic
eTrading
eMail
eTabloids
eLife
eServices
eZines
eLaw
eMeetings
eScience
eBusiness
eBookWriters
eMedia
eCommerce
eMedicine

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Reading versus Authoring

- Reading is easier
- Authoring requires tools for
  - writing and drawing
  - data capture
  - page layout and document composition
  - reviewing, proofing, checking, approving
  - registration of publication
  - final form publishing

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Aqcess Qbe - PC Tablet

- 450Mhz P3
- 256MB RAM
- 6.7GB Hard Disk
- 13.3" Active Screen
- Touchscreen
- two-way IrDA Port
- DVD or floppy
- 2-PCMCIA Type 2
- Color Video Camera
- Linux & Windows NT

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Intelligent Scientific Collaborative Electronic Notebook Systems

(an organic chemistry example)

- does chemical calculations
- does structure searching & matching
- does complex simulation and visualization
- searches literature and on-line sources
- checks for and orders chemicals & equipment
- notifies you when experiments are done
- etc.

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Types of Recordbooks and Uses

- **Research Laboratory Notebooks**
  - For Intellectual Property Protection
  - For Capture of Raw Data, Observations, Analysis Results
- **Instrument Log Books**
  - For Demonstrating Regulatory Compliance
- **Engineering Notebooks**
  - For Capturing Engineering Inventions (IP Protection)
- **Batch Records Systems**
  - For Manufacturing Recordkeeping
- **Clinical / Field Notebooks**
  - For Data Capture in the Field (feed into records systems)

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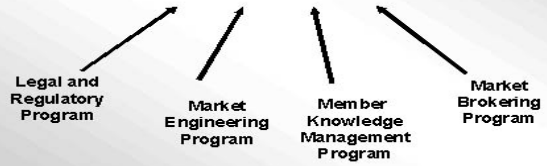
CENSA =
Market Development Association

Purpose: Catalyzing Evolution of R&D Automation Markets



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CENSA Distinctions:

- **A Global Industry Association**
- **Focused on Developing Markets & Systems for**
  - Electronic Recordkeeping and Digital Archiving
  - Electronic Notebooks
  - Integrated Project Support Environments
  - Knowledge Management Systems for R&D
  - Advanced System Integration Tools
- **Leading end users and suppliers defining and developing targeted markets and products together**

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What CENSA is ***NOT***

- **CENSA is NOT a vendor**
  - *CENSA does not sell hardware or software*
- **CENSA is NOT**
  - a standards organization, (e.g., ASTM, OMG)
  - research consortium, or
  - professional association (e.g., ACS, DIA, AMA)

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Industries Represented by CENSA

- Over 40,000 R&D scientists
- Over 550,000 employees
- Many Industry Segments Represented:
  - Pharmaceutical
  - Chemical
  - Biotechnology
  - Healthcare
  - Consumer Packaged Goods
  - Computers, Software, and High Technology
  - Government Research (US DOE National Labs)

LEVERAGE... LEVERAGE... LEVERAGE

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CENSA End User Members

Abbott Laboratories
Boehringer Ingelheim
Bristol-Myers Squibb
Dow Chemical Company
Dow AgroSciences
GlaxoWellcome
Pfizer Pharmaceuticals
Procter & Gamble
Purdue Pharmaceuticals
Rohm and Haas Company
Monsanto Life Sciences
Allied Signal (UOP, LLC)
US DOE's National Labs
(PNL, ORNL, LBNL)

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CENSA Supplier Members

- Adobe Systems - Acrobat PDF, Graphics Arts, Document Tools
- NetDelivery / Coastek - Time-Stamping Services Software
- Documentum - Enterprise Document Management System
- DOXIS - "Forms Without Paper" Hardware & Software
- IceBreaker Communications - Design Engineers Electronic Notebook
- LabSystems - Lab Info Mgmt Systems and Instrument Interfacing
- Mantra Software - Lab Data Reporting and Data Warehousing
- PSSoftware - Records and Information Management Software
- ScripSafe - PatentPad security paper products

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CENSA's Problem Domains:

Tightly Focused on Three Global Industrial Problems

- **Protecting Intellectual Property**
  - Patents
  - Trade Secrets
  - Trademarks and Copyrights
- **Demonstrating Regulatory Compliance**
  - chemical, pharma, biotech, healthcare, consumer products, food and beverage, high-tech, *and other industries*
- **Improving R&D Automation Markets & Products**
  - Infrastructure Components, Applications, and Integration Tools

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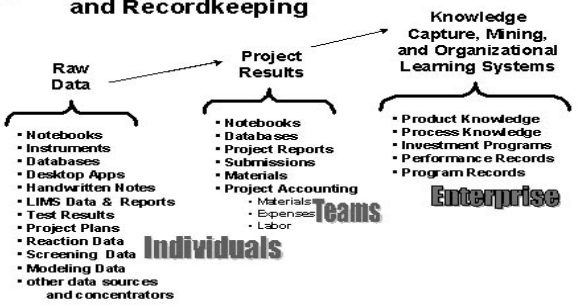
R&D Project Data Handling, Collaboration, and Recordkeeping



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CENSA Approach

- **A holistic, step-wise approach to:**
  - developing markets
  - creating products
  - selecting vendors and products
  - deploying projects
  - solving an entire spectrum of problems within member companies and government organizations

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What's in CENSA for End Users?

- **Better recordkeeping**
- **Better collaboration throughout R&D**
- **Better access to data**
- **Better knowledge management**
- **Get RM, CENS, IPSE, KM operations faster**
- **Leverage, leverage, leverage...**

Better business because of membership

--> more products to market faster

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What's in CENSA for Suppliers?

- Gain Early Access to a Ready and Waiting Market
- Gain Early Mover Advantages
- Greatly Reduce:
  - time to product development
  - cost of sales and sales cycle
  - time to installed base and market share
- Receive Detailed Technical and Market Research
- Piggy-back onto Industry and Government-Funded Research and Development Work
- Receive Detailed Engineering Specifications
- Feed Interfaces into Common CENS Architecture™

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CENSA Key Leverage Points

- Broad Expertise in Specification and Selection
- Broad Product Knowledge and Vendor Influence
- Collaboration With Peers
- Greater Legal & Regulatory Confidence
- Multiply Resources and Reduce Costs 10-20 times

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1999-2000 CENSA Programs

1999
- Legal & Regulatory Standards Program (Policies, Procedures, etc.)
- Electronic Recordkeeping & Digital Archiving Systems

2000+
- Collaborative Electronic Notebook Systems & Apps
- Intelligent Project Support Environments (IPSE)
- Common CENS Architecture™ for Integration
- Component / Application Integration Tools

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CENSA Legal and Regulatory Program Deliverables

Lifecycle Specifications, Guidelines and Educational Documents for

"Good Electronic Recordkeeping Practices"

for Organizations Operating under Government Regulations

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Global Industry-Interagency Group

on E-Recordkeeping and Digital Archiving Systems (GIIG on ERDAS)

- *A Proactive Problem-Solving Group of Governments and Industries*
  - **United States** (FDA, EPA, PTO, NARA)
  - **Canada** (Health Canada, Environment Canada, Archives Canada)
  - **Europe** (OECD, EPO)
  - **Japan** (JPO, Ministry of Health, Ministry of Environment)
- *Common Legal & Regulatory Agency Deliverables*
- *Deliverables for Contributing Members Internal Use Only*
- *Open to Government Regulatory and Administrative Agencies*

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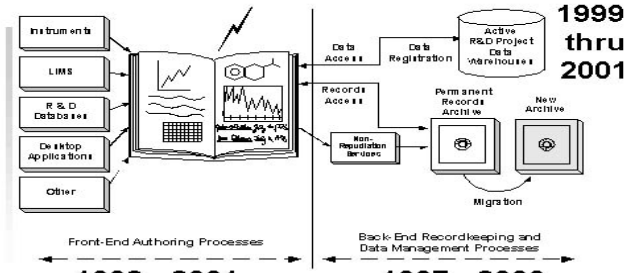
CENSA's Development Programs



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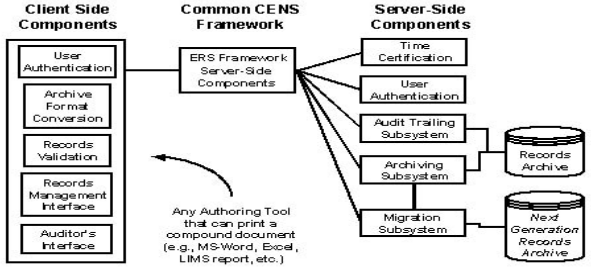
Electronic Recordkeeping Services



The ERS Components of the Common CENS Architecture™

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Significance of ERS V1.0 Specs

- First Time Many Industries have Jointly Given ERS Functional Specifications and RFPs to Vendors
- Specifies All Major Functionality for ERS (e.g., indexing, scheduling, storage, retrieval, migration, other)
- Vendors Responding With Products Now:
  - Adobe Systems
  - Documentum
  - Doxis
  - IceBreaker Communications
  - PSSoftware
  - others

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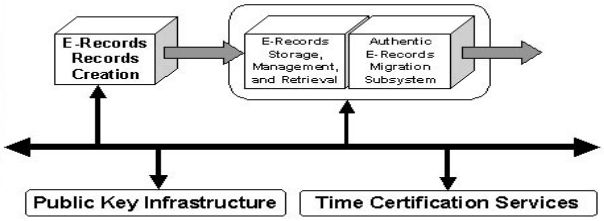
ERS with Preservation



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An Electronic Recordkeeping "System" ...

At least these components well-designed and integrated :

Technology Components
electronic signatures, time-certification, electronic records storage and management, audit trailing, security, portable electronic record formats, and records migration;

Non-Technology Components,
policies and procedures, training, nomenclatures, protocols, and other knowledge for development, installation, configuration, validation, usage, quality auditing, and other SOPs for routine system operations

... implemented so that fully electronic (legal) records can be created, managed, preserved, and accessed for many decades to come

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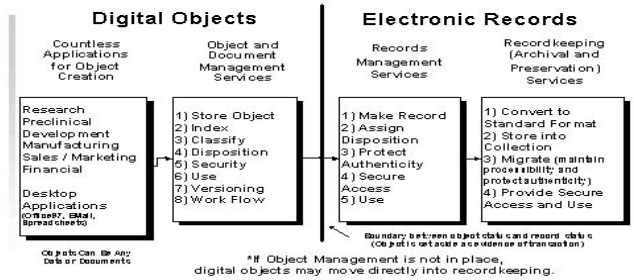
ELECTRONIC RECORDS LIFECYCLE PROCESS MODEL



*If Object Management is not in place, digital objects may move directly into recordkeeping.

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The Common CENS Architecture™

CENSA

A Component-Based System Architecture for Integrated Data, Document, Records, and Knowledge Capture, Management, Preservation, and Access

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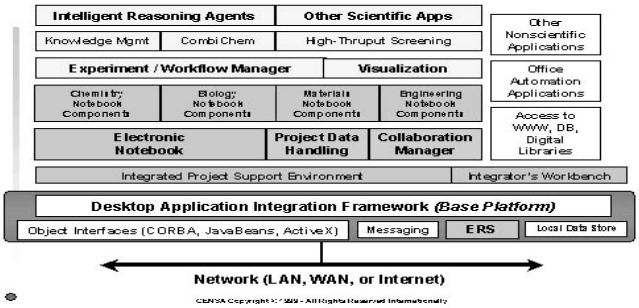
Common CENS Architecture™



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A Good Reference Architecture is Being Developed to Promote:

- A much higher level of defacto integration
- Common, open ("published") subsystem interfaces
- Greater component reuse across many applications
- Much higher productivity for integrators and automation professionals
- Greater cost savings implementing Intelligent CENS

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OpenLab™ Toolkits, Components and Implementation Tools

- Standardized Vocabularies for Laboratory Data & Gear
- XML / JavaBeans / ActiveX for Lab Data with Object and Semantic Models
- General-Purpose Application Integration, Database Construction, and Application Development Tools
- Reference Implementation with Compliance Tests
- Data / Object Models Being Constructed Now To Leverage Many Previous Relevant Works (ANDI / ASTM / ADISS Lab Data Interchange, EPA's DEEMS, LIMS Data Models, others)

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OpenLab™ Toolkits, Components and Implementation Tools

- Reaction Schemes
- Chemical and Instrument Methods
- Equipment and Materials
- Synthetic Procedures
- Spectral Data and Results
- Reporting Tools
- Electronic Notebook Formats

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CENSA Accomplishments

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CENSA's Accomplishments

- Legal and Regulatory Program
  - GIIG on ERDAS formed, working now to create "Good Electronic Recordkeeping Practices" (GERPs)
  - GERPs Framework Document Draft Released to GIIG Members
  - Created and distributed 21 CFR Part 11 "Gap Analysis Tools"
  - Issued Industry Consensus Response to FDA's 21 CFR Part 11 (7/98)
- Electronic Recordkeeping Systems "ERS" Software Market Program
  - Issued Industry Consensus ERS Specifications & RFPs. (3/98)
  - Actively Worked with Supplier Members to Build ERS Products
  - All CENSA Supplier Members are Responding With Products Now
    - March 1999 - Adobe, PSSoftware, DOXIS shipping ERS products
    - June 1999 - Documentum & others doing development work now

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CENSA's Accomplishments (cont.)

- CENS Application Software Market
  - Functional GUI prototype approved by users (CENS and IPSE)
  - Concept Paper being approved June 1999
  - Requirements Document drafted (approval in September 1999)
  - *Functional Requirement Specification drafted (final Winter 1999)*
  - *RFP Process will run by the end of 1999*
- Common CENS Architecture and Integration Frameworks Software Market
  - Product Research Ongoing Now
  - Requirements Document Drafted and Circulating Now
- Other Results
  - Many Trainings
  - Agency / Industry Knowledge Exchange Forums Held
  - Attorney Education Sessions Held

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eBook Market Evolution

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Industry Must Clear Some Hurdles

- **Vendor Strategies Resisting Preservation:**
  - Planned Rapid Obsolescence
  - "The Data Conspiracy" aka "Vendor Lock" (very poor or no export features)
  - Expensive System / Application Integration
- **Status Quo Strategy: "Customer Lock" versus "The Best Quality and Value"**
- **"Open Business Practices" vs. "Open Systems"**
- **Lack of Standards for Long-Term Preservation**

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Industry's "Immune System" Fights to Keep The Status Quo:

- **Rapid Obsolescense Earns BIG BUCKS for all types of vendors:**
  - It fuels new waves of innovation for product vendors
  - It requires ongoing (expensive) system integrators, application experts, consultants, and trainers
- **Product vendors slowly release open or mature "whole products" because they undercut integration, consulting, and 3rd-party revenues**
- **Price to purchase integrated "whole systems" is only remotely related to cost to create them.**

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The Tension of Standards

- **Standards Development is an R&D expense that cuts deeply into vendors' profit margins**
- **Standards allow markets to advance quickly**
- **Standards reduce risk for vendors entering markets and building systems** (positive & negative)
- **Vendors try to be the standard, own the standard, or not comply with others' standards**
- **"No standards" make big bucks for integrators, who "glue" products together at great expense**
- **Good standards make integrators go faster**

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E-Records Standards Hurdles

- "Recordkeeping" standards are not yet seen as important
  - only "data and document sharing standards" (e.g., HTML, PDF)
- No interoperability above ASCII / HTML and PDF
- Poor specificity for R&D data types
- Slow acceptance among vendors & end users (e.g., PDF)
- No solid financial drivers (justification) by end users
- No incentives (purchasing behavior changes) by users
- Giga-Bucks made from status quo (great for vendors; very costly for end users)

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eBooks as Carrier of a Message

- **The eBook is just another Medium**
  - **recordings on Cassettes; CDs; DAT tapes**
  - **cell phones**
  - **AM / FM radio**
  - **television**

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Realities of eBook Market

- High Quality Bookreaders will be Free
- Switching Costs Will Be Low
- Content Will Always Be King
- Short-Term & Long-Term Compatibility Are Critical to Success of the Industry

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Avoiding Consumer Rejection

- eBook Problems to Avoid
  - Incompatibility
  - Poor Interoperability
  - Poor Reliability
  - Poor Fidelity
  - Poor Usability

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Interoperability Problems Cause:

- total loss of the reading experience
  - e.g., can't open book
- loss of fidelity of the reading experience
  - e.g., graphics or movies don't show
- errors in loading and display
  - e.g., error reports are meaningless or poor
- loss of access to information and tools
  - e.g., can't complete task at hand

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Interoperability Problems Cause:

- User Frustration and Anger
- Loss of Sales
- Loss of Loyalty
- Further delays in Consumer Acceptance

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Advice to eBook Industry

- Vendors
  - Avoid "the Bookreader Wars"
  - Supply Reference Implementations (to Developer Community)
  - Make the Technology Transparent (to Consumers)
- Consumers
  - Buy Interoperability; Vote with Your $$$

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Reference Implementations

- Promote
  - instant syntactic interoperability
  - easier semantic interoperability
  - greater developer and user acceptance
  - a higher-level playing field
  - better quality products

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In Summary

Moving Forward...

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Next Steps for eBook Industry

- Finalize and Start Using the Open eBook Standard
- Create "eBITS" (eBook Interoperability Testing Service)
  - supply free testing profiles, suites, standard multimedia texts
  - supply open source reader/writer reference implementations
  - assess and report extent of specification compliance
  - create third-party compliance testing service
  - certify compliant products with Open eBook Brand (ala UL)
- Develop Rich Multimedia Standards
- Work Closely with Library Community to Develop eBook Library Networking and Cataloging Standards

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Creation of Electronic Notebook Systems is a Journey...

- It is not simply a question of finding the right vendor or the right product...
- Technology provides only a small part of the answer.
- The end in sight involves no less than cultural and industry transformation...

CENSA is Providing Maps of the Territory and Blueprints to Help Organizations Succeed Faster

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For More Information Contact:

The Collaborative Electronic Notebook Systems Association (CENSA)

800 West Cummings Park, Suite 5400, Woburn, MA 01801

e-mail: info@censa.org;
web: www.censa.org;
phone 781-935-9600

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Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Steve Potash

Founder, CEO
OverDrive Systems, Inc.

www.overdrive.org

Steve Potash is the founder and CEO of OverDrive Systems, Inc., the developers of BookWorks, an electronic publishing software platform developed to support open eBook standards for commercial publishing on the Internet, CD-ROMs and eBook reading devices. Over the past decade, OverDrive Systems has developed more than 1,000 digital titles for professional, education and consumer markets. It has licensed its technology to divisions of Time-Warner, Simon & Schuster, McGraw-Hill, John Wiley & Sons, Harcourt Brace, IDG Books Worldwide, Thomson Publishing, Ziff-Davis and others.

Mr. Potash is an experienced trial attorney who has served as Special Counsel for the Ohio Attorney General's Office and consults technology companies on software licensing and Internet law matters. He holds U.S. software patents for document assembly applications. He is a member of the Authoring Committee for the Open eBook Specification Standard.

Mr. Potash holds a B.A. from The Ohio State University, and a Juris Doctor from the Cleveland-Marshall College of Law.

Open eBook Authoring Tools and Processes for Commercial Title Production

Steve Potash, President
OverDrive Systems, Inc./BookWorks
www.overdrive.com

Summary Checklist Before you begin

- Define Target Markets
  - Users & Platforms
- eBook Distribution & Product Channels
- Review Content Issues
- Analyze Strengths and Success of Print Book or title
- eBook Sourcing Issues and Options
- Rights and Licensing Landmines

Answering the Questions that Define Your Target

- Which market?
  - **Information** - Professional, Reference, Educational, Training
  - **Reading** – Mass, Consumer, Fiction, Juvenile, recreational reader
  - Mixed Markets – Authoring for multiple channels
  - Identify the Target Platforms (reading devices) for user (desktop, CD, handheld reader)

eBook Distribution & Product Channels

- Download eBooks for Readers, PC, palm devices
- Web-based library for access via subscription or membership
- CD ROM and other fixed media
- Packaging product for various reseller channels, OEM, bundling

Review the eBook assets

- Text issues and formatting demands
- Graphic content
- Web access, Internet assets
- Multimedia and Interactivity
- Updates, supplements, library status
- Promotional materials associated with title

Evaluating the Strengths of the Print Product

- Leveraging the print franchise or "branding" the eBook format
- Front matter, jacket copy, etc.
- Granularity
- Portability
- Title Navigation
- Presence and style

Other eBook Production Issues – Getting closer

- Volume of titles
  - Automating processes vs desktop tools
- Going forward (new and frontlist) or backwards (mid and backlist)
- In-house DTP versus outside vendors
- Variety of electronic file format sources
- Prototyping cycles and formatting goals

Initial Conversion Issues – Moving to Open eBook

- Find the best available starting point
  - Hardcopy, DTP, (Quark, PageMaker, Word, RTF, etc.) HTML, PDF, proprietary formats
  - Source Image formats
- Normalize multiple formats
- Review version control issues
- Create an Open eBook file repository

Summary of Steps for eBook Export and Conversion

1. Export source format to "raw" HTML (unstructured) format
   - (Example: Quark => HTML using extensions)
2. Use Cascading Style Sheets to control presentation and clean-up to match print
3. OverDrive parser and format tool to convert to Well Formed HTML and/or OEB
4. Convert image files to eBook resolution
5. eBook Authoring/Building products for each platform

OverDrive BookWorks – for Open eBook Production

- BookWorks Author for complete eBook development for Information and Reference Products
- BookWorks Browser – runtime reader with search, navigation, and Internet browsing
- BookWorks Express for building eBooks for several formats (Q4 1999)

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Christopher G. Pooley

President, CEO
Books 24 x 7.com

www.books24x7.com

Joining Books24x7.com in November 1997, Pooley has over 14 years of experience with successful startup companies in the electronic publishing industry.

Pooley held senior management positions at SilverPlatter Information, Inc., where he developed relationships with key publishers to license their data for CD-ROM delivery to library and professional markets.

Pooley developed national and international sales and distribution channels, managed software development and launched new technologies that enabled SilverPlatter to grow to over $50 million in revenue by 1994. Prior to joining SilverPlatter, Pooley served as executive vice president of sales at Pro CD where he grew sales for the award-winning Select Phone product line from $2.5 million to over $20 million in two years.

He also expanded the retail store presence to over 5,000 outlets while developing a corporate sales function. This expansion successfully licensed Pro CD data and technology to large customers and Internet providers like America Online.

Pooley has a BS degree from the University of Massachusetts and an MBA from Babson College.

Electronic Book '99

September 21, 1999

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Where IT Pros Go for Answers

Lessons in Content Aggregation

- Pursuit of the Endless Frontier
- Technology has changed our world
  - Personal Computers
  - Internet
- How will it change publishing?

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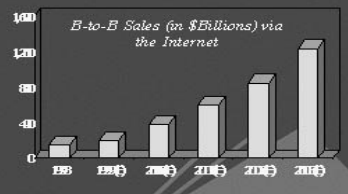
Where IT Pros Go for Answers

Introducing Books24x7.com

First to Market:

- ✓ B-to-B
- ✓ Professional info service
- ✓ Targeted at corporate IT users
- ✓ Recognizes value of branded content
- ✓ Broad publisher support



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Where IT Pros Go for Answers

Proven e-book Leader

- Formerly Modern Age Books
- Published 1,000's of electronic books
- Shipped millions of them
  - OEM
  - Software publishers
  - Computer Trade Books Publishers
- Paid Million$ in royalties

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Where IT Pros Go for Answers

About Books24x7

- Proprietary production tools
- In-house production staff
- Focus on added value publishing
- Create information service
- Personalized electronic libraries

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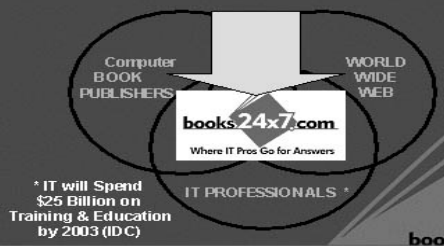
Where IT Pros Go for Answers

Significant Opportunity

Gap Exists in IT Info Availability



* IT will Spend $25 Billion on Training & Education by 2003 (IDC)

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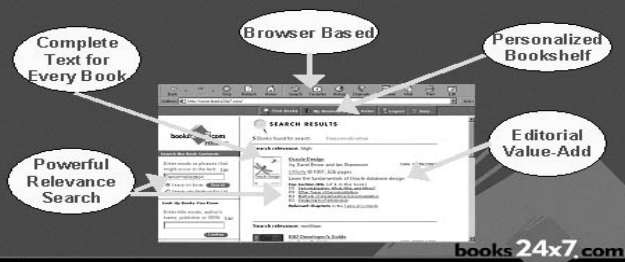
Compelling Online Delivery of Branded Book Content



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Where IT Pros Go for Answers

New Publishing Opportunity

- Publisher production costs are nil
- New revenue opportunity
- Site designed to help sell books
- Present content to wide audience
- Leverage authors & publishers

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Where IT Pros Go for Answers

Premium Content Strategy

Partner with Top Publishers

Macmillan · que · SAMS · Artech House Publishers · SYBEX INC. · O'REILLY · waveside publishing · OSBORNE

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Where IT Pros Go for Answers

Authoritative, High Value Content

PRIMA TECH · McGraw Hill · WILEY · Digital Press · NOLO PRESS · The MIT Press

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Where IT Pros Go for Answers

Partnership Strategy

Leverage Content-centric Web Partners

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Where IT Pros Go for Answers

Positioned for Next Stage in Web Evolution

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Where IT Pros Go for Answers

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Sol Rosenberg

President

Versabook Division,

Versaware Inc.

www.aps.org

Mr. Rosenberg founded Versabook with Harry Fox in 1996. He has over 20 years of experience blending the disparate fields of publishing and high technology. He founded the first nationally syndicated radio show on computers in 1985, along with a successful computer trade journal. Mr. Rosenberg founded CBC, a company specializing in high-tech communications and publishing, and served as Director of Software Development for North American Philips. In 1991, after co-founding Futurevision, he continued with The Learning Company, licensing and developing high-profile reference properties from publishers in the US, UK, Germany, France and Spain.

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John W. Roberts

Electronics Engineer
National Institute of Standards and Technology (NIST)

www.nist.gov

John Roberts is Program Manager for the Advanced Display Technology Systems lab, within the Information Technology Laboratory at the National Institute of Standards and Technology (NIST).

The ADTS Lab is dedicated toward research on the role of displays (including, but not limited to visual displays) as the human-machine interface in information technology systems. Current projects include development of new measurement techniques to characterize displays as a function of display design and information content, investigation of the display aspects of electronic book readers, and development of a new Braille display technology to improve accessibility to electronic text-based media such as E-books.

John has been conducting research in the field of displays since 1993, and participates as a member of the display-related technical committees of the Video Electronics Standards Association (VESA).

A Novel Braille Reader for Electronic Books

John Roberts
Oliver Slattery
Information Storage and Integrated Systems Group
NIST ITL

Outline

- The importance of information accessibility
- Existing paths to accessibility
- The need for new approaches
- The NIST rotating-wheel Braille display
- Progress so far

The Importance of Information Accessibility

- Estimated 750,000 blind in US, millions with low vision
- Accessibility improves quality of life, increases independence
- A huge resource of talent - can benefit the economy, the arts, etc.
- Internet, E-books get information "most of the way there"

Existing Paths to Information Accessibility

- Low vision systems
- Speech systems
  - Easy to use, existing interfaces
  - Standards (e.g. Digital Talking Book)
  - Good for general use, harder to use for precision editing, programming
  - Not everyone can use
- Braille (printed, refreshable)

Refreshable Braille Displays

- Require training in Braille
- Considered very useful for precision work
- Hundreds of moving parts (reliability issue)
- Existing types (Alva, Braillex, Blazie, etc.):
  - Small/portable
  - Full-line (80 characters) - cost over $10000
- Braille market has been limited by cost, reliability, competing technologies [voice]

The Need for New Approaches

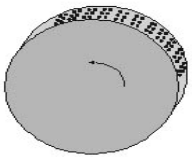
- New visual display systems are being developed - the same is needed for non-visual displays!
- Advances in technology open up opportunities for new, better display systems

The NIST Rotating-Wheel Braille Display

Functional Principles and Goals

- Reading Braille is a dynamic process
  - Fingertip moves across the Braille text
  - Display must enable this natural scanning motion
- Goals at outset of project:
  - 10x reduction in cost
  - Significant increase in reliability
  - Reasonable convenience of use

Braille Wheel - the Basic Concept



Advantages of Wheel System

- Great reduction in number of actuators
  - Reduced cost
  - Better reliability
- Compact format providing long lines of text
- Challenges:
  - User learning required for moving Braille format
  - Power consumption?? (issue for portables)

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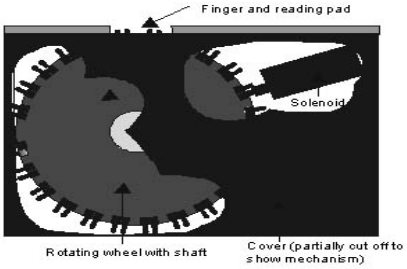
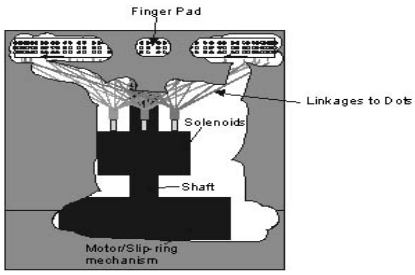
Implementation Options

- Internal actuators
  - Two Braille cells exposed - but all cells driven
  - Twelve actuators required
- External actuators
  - Braille dots are passive devices on wheel
  - Dots positioned by actuators before reaching exposed area, remain in place until reset
  - Three actuators required

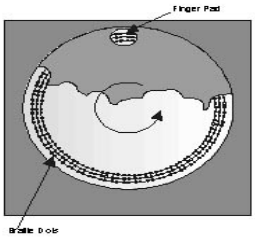
External Actuator Implementation



Internal Actuator Implementation



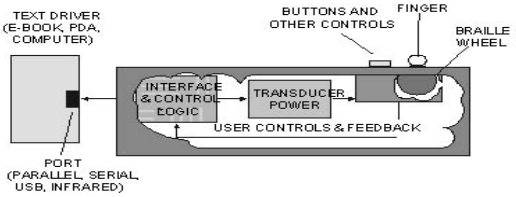
Disc Implementation



User Control

- Needed to make display usable
- Buttons or voice to control text on wheel
- Most critical: start/stop, rotation rate
- Wheel-specific protocol: when skipping in text, insert "blank" interval
- May follow control structure of "Digital Talking Book"

Example System, with User Controls



Electronic Book Application

- A natural application for Braille display is electronic book reading
- Can be integrated display, or attachment to other reader device/computer
- Prototype implementation uses file transfer (ASCII or other formats)

User Issues

- The ultimate criterion: must provide a worthwhile reading experience!
- Requires extra learning to use - will cost and reliability benefits give net benefit?
- Will a dynamic display enable new capabilities?

Progress So Far

- Provisional patent application filed
- Functioning prototype to demonstrate operational concepts
- Control by desktop to display electronic book in Braille
- Come see it on the lab tours!

Conclusion

- The rotating-wheel refreshable Braille display is a novel design, which offers several advantages over existing design approaches. Its introduction may result in a significant increase in the use of Braille as a means to accessibility.

Thanks:

- Victor McCrary, and NIST/ITL management for their support, David Kardos and Grace Jordan for work on prototype
- Curtis Chong for advice and information on existing systems
- George Kerscher, Judith Dixon, Fernando Podio, and Ron Tosh for their encouragement and advice
- The organizers and participants of the Digital Talking Book standards work

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George Kerscher

Project Manager
Recording For the Blind & Dyslexic

www.daisy.org

George Kerscher is one of the early believers of electronic books. In 1988 he started a non-profit company called Computerized books for the Blind & Print Disabled. George saw that technology was the great equalizer for persons with disabilities and electronic books accessed through talking computers could open the world of information to the blind and print disabled.

George's company merged with Recording For the Blind & Dyslexic (RFB&D) in 1991. RFB&D, a non-profit company, is the national provider of textbooks and professional materials on tape and E-Text. RFB&D is a full member of the Digital Audio-based Information SYstem (DAISY) Consortium. He has been placed on loan to DAISY as their project manager.

The mission of the DAISY Consortium and its 29 libraries worldwide is to develop the standards for the next generation of information technology for persons who are blind and print disabled. The emerging DAISY specification is being developed in conjunction with the National Library Service for the Blind and Physically Handicapped, Library of Congress through a NISO committee. The draft specification combines text marked up in XML and digitally recorded human speech synchronized in a multimedia presentation based on W3C recommendations.

George has been highly involved with the Open Electronic Book Forum to ensure the design will be accessible to persons who are blind and print disabled. He has mentioned many times that, "The requirements for electronic books for mainstream readers and those of us who are blind and print disabled are the same! We just need to create specifications that are designed for all."

Converging Standards = Access to Information by Persons with Print Disabilities

by
George Kerscher, Research Fellow
Recording For the Blind & Dyslexic (RFB&D)
Project Manager to the DAISY Consortium

The Blind and Print Disabled Population

- Less than one half of one percent of school age students are blind.
- Less than three percent of the population have dyslexia or some other print disability that prevents them from reading.
- About one in five adults will develop macular degeneration or some other eye disease that will lead to a print disability (ages 50 and up)
- Another five % of the population have a milder case of dyslexia that does not fall into the category of a disability, but these people rarely excel in school or enjoy reading.

How do these people cope today?

- Recording For the Blind & Dyslexic (RFB&D) produces about 4000 taped textbooks a year. RFB&D has about 78,000 recordings in the library's collection.
- The National Library Service for the Blind and Print Handicapped (NLS), a division of the Library of Congress, produces about 2,000 new audio recordings of leisure reading books a year. NLS serves primarily an elderly population.
- Braille is being produced by American Printing House for the Blind (APH) and by some states to serve their students.
- School age students and professionals are using assistive computer technology, such as: talking computers, refreshable Braille screens, optical scanners (OCR), and talking web browsers.

Electronic Books CAN and SHOULD be ACCESSIBLE

- Requirements for main stream electronic books and requirements for persons with print disabilities are the same!
- One set of source files contains the structure and content
- The style of the presentation differs for each user.
- The person selects the style that is right for them
- The content can be rendered visually with the end user's choice of font size.
- The information can also be rendered with synthetic speech.

Digital Talking Books - Multimedia Presentations

- The mission of the DAISY Consortium is to develop the standards for the next generation of information technology for persons who are blind and print disabled.
- The DAISY Consortium is working with the National Library Service for persons who are Blind and Print Handicapped.
- The NISO effort is defining the standards for Digital Talking Books (DTB).
- DTB combines text and audio recordings in a multimedia presentation.
- The text is marked up in XML with a book DTD.
- The digitized recordings are standard audio files, such as MPEG 3.
- Synchronized Multimedia Integration Language (SMIL) a recommendation of the W3C is used for the presentation.

Converging Standards and Technology

- Currently the DAISY NISO DTD is different from the Open Electronic Book DTD.
- The goals of both efforts are the same.
- The DAISY / NISO work has defined extensive navigation functions missing from the Open Electronic Book work.
- The next generation of both systems should converge and work together to develop a single standard that works for all.

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Minoru OHara

Chair of the Technical Committee, SSFDC Forum

www.toshiba.com

SmartMedia is the most popular memorycard in the world. In the digital camera market, SmartMedia was shipped more than 5-milion in 1998 and has come to be a de-fact standard. In 1999, Audio ,book ,and software, these contents are starting to provide with security type SmartMedia.

SmartMedia™ for E-book Seminar

1999/9/21-22

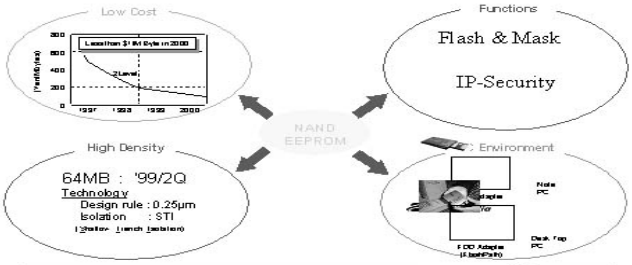
Overview

- *Market*
- *Applications*
- *Specifications*
  - *Physical/Electrical*
  - *Format*
- *Conclusions*

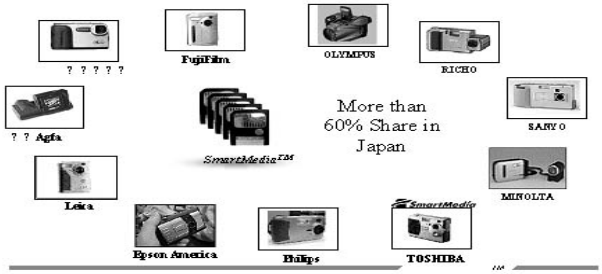
What is SmartMedia ?

- The Most popular Memory Card in the World.
- Using advanced Memory Technology
- Package = Card Concept

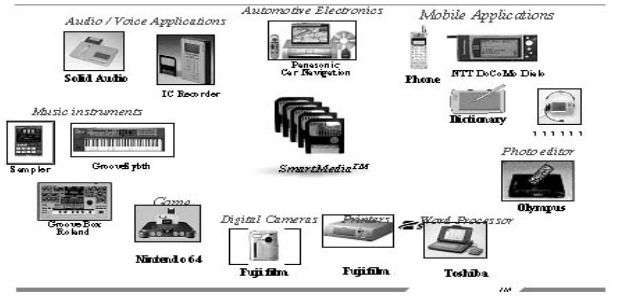
SmartMedia Concept



SmartMedia Digital still cameras



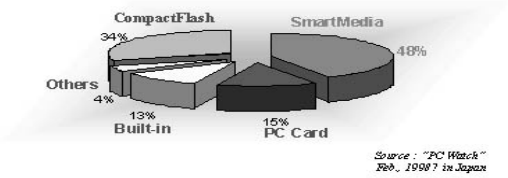
SmartMedia Applications



SmartMedia PC connectivity

Host Type	Adopter	Example
Note PC	PC Card (ATA)	
Desk Top	FDD Adapter "FLAHPATH"	
New PC	USB or Embedded	

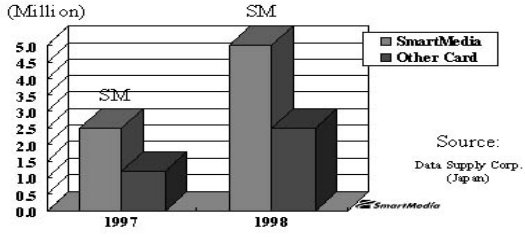
SmartMedia Share



Source : "PC Watch" Feb., 1998? in Japan

SmartMedia Compliant Camera: **Up to 60 % more** in 1999

SmartMedia vs. Other Card

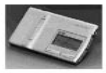


Digital Audio ? Applications

Silicon Audio Starting !

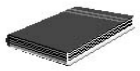
Flash Memory will take Magnetic Media place of Music

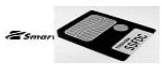
- ? ? ? ? MP3
- ? ? AAC
- ? ? Twin VQ
- ? ? Atrack3



NEW Market

- Electric Book
- Software Providing
- Hybrid Application
  - Imaging
  - Audio,Voice
  - Text Information





Media requirement for IP Related applications

- ***Security***
- ***COST***
- ***Reliability***
- ***Easy Interface***

Security SmartMedia

- Unique ID for Each SmartMedia
- ID can read with Hidden Command
- Upward Compatible with Regular SmartMedia

COST Comparison

- SmartMedia: Just Memory

- PC Card,CF MemoryStick, MMC
  - Memory & Parts: Controllers , PCB, Case Metal Plates,Switche,IC
  - Additional Cost: $ 8 - 20

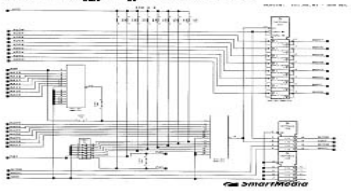
Reliability

- Market Data: Shipped 8M peace
  - No record with ESD problem
  - More reliable than PC Card on Fail Rate

Easy Interface design

- ***Just decoder and buffer for control !***

8-bit IO Port



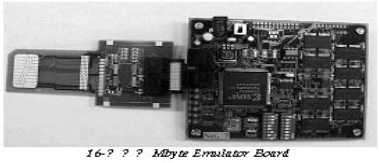
- ***Small Driver Software:50 KB***

SmartMedia Format Analyzer

- ***Format Analyzer Software***
- *Dump Memory Image*
- *Format/CIS Init*
- *Change /Erase the Data*
- *Show the FAT parameters*
- *Show the Block/Page Status*

SmartMedia Emulator

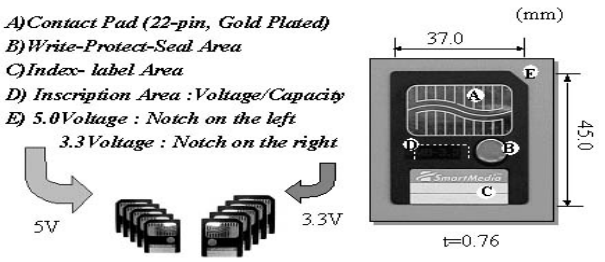
- ***Emulate the Future Memory up to 128MB (1Gb)***
- *For Common Interface Design up to 128MB Now!*



16-? ? ? Mbyte Emulator Board

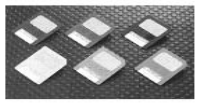
SmartMedia Dimensions

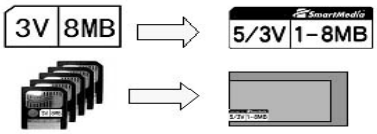
A) Contact Pad (22-pin, Gold Plated)
B) Write-Protect-Seal Area
C) Index- label Area
D) Inscription Area : Voltage/Capacity
E) 5.0 Voltage : Notch on the left
3.3 Voltage : Notch on the right



SmartMedia Types

- Colors: Not only Black
- Memory: FLASH/ROM
- Capacity: 1 to 128 MB
- Voltage : 5 V , 3.3 V
- Compatibility Icon

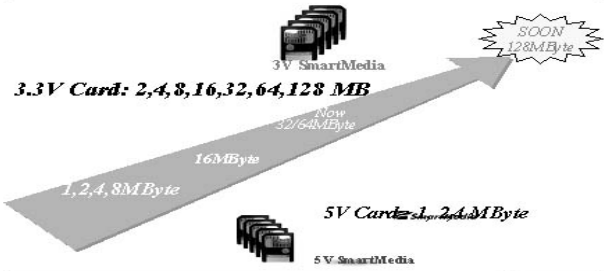




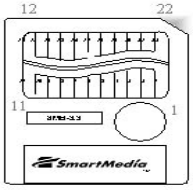
Memory Types

- Alternative Source : TOSHIBA/SamSung
  TOSHIBA SAMSUNG
- Memory Identification
  - Read CIS
  - Read Device ID

SmartMedia Line-up



Pin Assignment



No.	Pin Name	I/O	Pin Function
1	GND		Ground
2	CLE	I	Command Latch Enable
3	ALE	I	Address Latch Enable
4	-WE	I	Write Enable
5	-WP	I	Write Protect
6	D0	I/O	Data 0
7	D1	I/O	Data 1
8	D2	I/O	Data 2
9	D3	I/O	Data 3
10	GND		Ground
11	-CD	O	SSFDC Card Detect
12	VCC		Vcc
13	D4	I/O	Data 4
14	D5	I/O	Data 5
15	D6	I/O	Data 6
16	D7	I/O	Data 7
17	LVD	O	SSFDC Low Voltage Detect
18	GND	I	Ground
19	R/-B	O (OD)	Ready/Busy
20	-RE	I	Read Enable
21	-CE	I	Card Enable
22	VCC		Vcc

Media Format

Layer	Type	Example
Application	File Application	JPEG MP3
Logical	File System	DOS-FAT
Physical	Basic Data	CIS SmartMedia

SSFDC FORUM

SSFDC FORUM

More than 80 companies participate in SSFDC Forum as of November,'98

SSFDC Forum
Lovated in Tokyo ,Japan

Features and specifications of SmartMedia

FAQ New

Working on Market Promotion

URL: http://www.ssfdc.or.jp

SSFDC Forum Services

- ***Market Promotions***
  - *Joint Advertisement*
  - *Trade Show & Seminars*
- ***Compatibility Lab.***
  - *Plug Festa*
  - *Evaluation Tools*
    Analyzers,Cameras, Emulator to 128MB
- ***Interface Design Guidelines***
  - *Design Guidelines*
  - *Design Tolls*

SmartMedia

Summary

- ***For Digital Camera ,Mobile applications, Audio***
- ***NAND Flash Memory Technology***
- ***1-128MB: Common Dimensions and IO design***
- ***Media Format***
  - ***Physical Format / Logical Format***
- ***Design Tools***

SmartMedia

Conclusions

- ***SmartMedia is the most popular memorycard.***
- ***Cost Competitive by Memory Technology***
- ***Easy Design by Tools***
- ***Open New Market :Mobile,Audio and Others***

SmartMedia

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Gaithersburg, MD

Ralf Georg Wirth

Dipl. - Inform.
ECCE TERRAM

www.ecce-terram.de

Ralf Georg Wirth was born 26th May 1970 in Werl, Germany. He studied computer science at the University of Oldenburg and completed his studies with a diploma in 1997. During his studies he worked as Webmaster of his department and was thus able to gain wide experience with the WWW, which was just developing then.

After that he joined the project "Copacabana" at the University which is working on publishing scientific literature in the WWW. At the same time he started working for ECCE TERRAM.

Since March 1999 he is working full time for ECCE TERRAM. He is the head of a team of three that is mainly concerned with electronic publishing, internet speed measurements and Electronic Stock Markets.

He will present "The market for Electronic Books in Germany" at the Electronic Book '99 Conference.

ECCE TERRAM

Internet - Online-Präsentationen - Beratung

The German market for electronic books

Presentation at
Electronic Book 99
by
Ralf Wirth

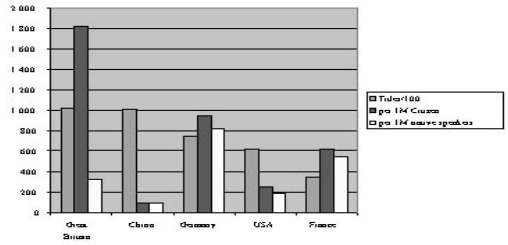
Differences

- **Books: fixed vs. free prices**
  - Publishers determine prices
  - National and international
  - EC to cancel international fixed prices
- **Central Distribution of Books**
- **The Communication market**

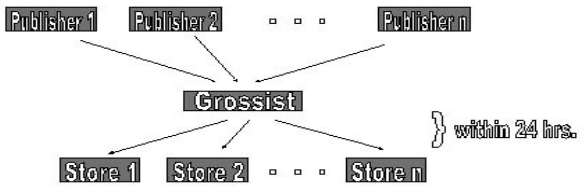
Advantages of fixed prices

- **Protection of non-bestsellers**
  - bestsellers finance others products (mixed calculations)
- **Supports a fair distribution system for cities and the country**
- **Inexpensive access to main stream and a variety of specialized books**

Title production



Central Distribution



Telecomunications market

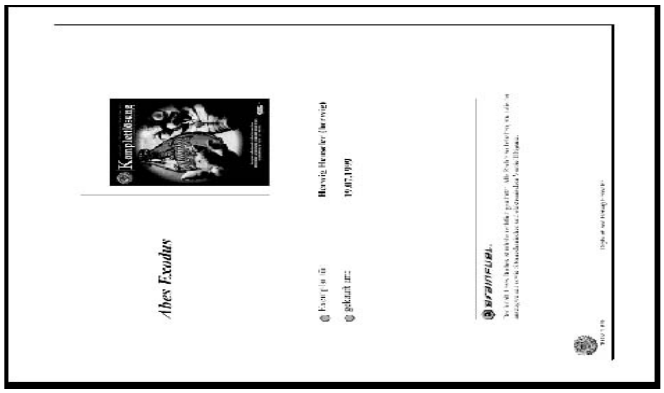
- **Monopoly of Telekom canceled 1.1.1998**
- **Power Suppliers start using their net for data transmission**
- **Online cost drops constantly**
- **Standard access line today is 56K**
- **Online suppliers: Telekom and AOL dominate the market**

Selected projects

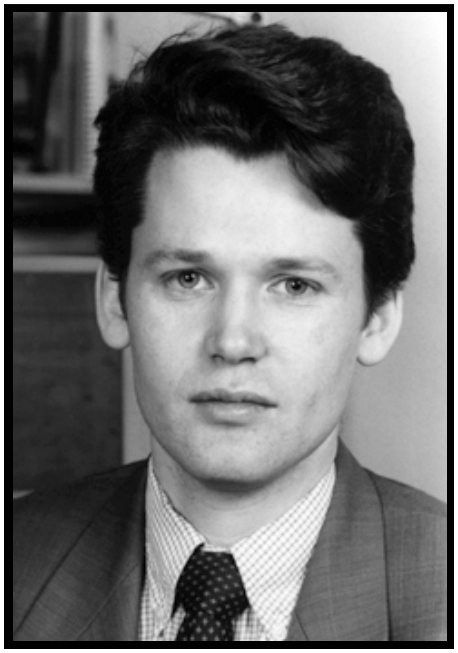
- **Ministers of culture**
  - Electronic books as school books
- **Copacabana:**
  - „digital university press“
  - focus on scientific authors
  - Platform: PDF

Selected projects

- **Digibuch:**
  - focus on customers
  - Platforms: PDF, Palm Pilot, Electronic Book Hardware
  - Payment: debit note/on account/Credit card. Waiting for Ecash-Standards
  - cost 30-60% of print version
  - copy protection: personalized books



Bruno de Sa Moreira



Co-Founder
General Manager

www.00h00.com

Mr. Bruno de Sa Moreira is the Co-Founder and General Manager of 00h00.com. In 1995, he became the Director of the Multimedia Department at Flammarion. There he produced a dozen CD-Roms, several of which received prizes, and went on to be popular titles in foreign markets. Prior to that, he was Marketing Manager for the European Union's support platform for independent European audiovisual producers.

He earned a Master of Business Administration from France's leading business school, École des Hautes Études Commerciales de Montréal. He also holds a Bachelor of Sociology from La Sorbonne, Paris University and a Film Production degree from University of California, Los Angeles. He is thirty-two years old.

Online Publishing: A European Perspective

Bruno de Sa Moreira
00h00.com

Introduction

In its June 28, 1999 issue, Time Magazine published a special report on ecommerce in Europe. Based on a survey conducted by the London School of Economics, six of the top ten e-commerce sites were European.

Time reviewed the 00h00.com site as one of the best sites for books: "00h00.com (Zeroheure) offers electronic versions of books which are sent by email within 15 minutes of an order. It also offers print-to-order books and books from the publisher's stock." To become the benchmark for European web sites selling digital books over the Internet is the objective of our company.

Our Vision

The development of the Internet and digitization techniques are the sign of a starting revolution in publishing: the arrival of a market for immaterial works, which are no longer linked to a physical support. The operation of putting the text onto its support (paper, CD, etc.) will eventually be done by the end user, or by a service provider near them. The trend toward this process is inevitable, and is important not only for text, but also for music (as we can see with the MP3 format) and videos.

One fact that is helping the push in this direction is that almost everyone working with intellectual property now uses computers, and they all want to be able to access digital copies of works. In the future, book publishers and record and film producers will focus on their basic task, that of selecting authors, assisting them in their creative activities, and producing contents ready for the audience.
In addition, along with their awareness of these new techniques, authors will tend to produce more and more works conceived for electronic publishing and delivery (hypertext works, links to online resources for documentation purposes, multimedia content). The article published in march 1999 by famous historian Robert Darnton in the New York Review of Books (http://WWW.nybooks.com/nyrev/WWWarchdisplay.cgi?19990318005F) is
highly significant of an evolution in the field of social sciences and humanities that is likely to occur in a near future.

What 00h00.com does

00h00.com publishes both new titles and reissues.

On the www.00h00.com web site, consumers can purchase books, after performing a search by subject, author or title, or after having read a summary or excerpts from the different books available. A few minutes later, a file is sent to the purchaser, containing the fully laid out text, which can either be read on screen or printed out directly by the user.
The reader can also chose to order a paper copy. In that case, two possibilities: either the title has been acquired from a traditional publisher, and printed copies are available: 00h00.com then supply a standard copy as would an online bookseller do; or the book is an original work or is out of print: then the book (softbound) is printed on demand on a single copy basis. Interestingly enough, the sales on the 00h00.com site breakdown as follows:
digital 85%, paper 15%.

From a technical perspective, 00h00.com uses a fully automatic system to
prepare its books and process orders.
This system has been developed in partnership with GYOZA MEDIA, a company based in Paris and Palo Alto headed by Cory McCloud. It is built around a database with a real-time digital book production module. For the time being, when a customer orders a digital book, and the transaction is validated, the system automatically generates a unique copy of the book in PDF format; this encrypted file can only be read after entering a password, which js individual. The book can be personalized by adding a dedication, and it is delivered in just a few minutes as an e-mail attachment.

Delivery of text files jn other digital formats (Rocket Ebook, Palm, Open Ebook Standard) has already been tested successfully and several dozens of texts should be available before the end of 1999. Likewise, formats like TK3 and new technology like E-Ink are currently under investigation.

Benefits to users

The high proportion of sales achieved in the digital format can be explained by the following features:
Immediate availability:
-Delivery is immediate (24*7) -when an order is made, the file is received within minutes,
-Orders are immediate -as soon as the user reads excerpts, an order can be made.
Additional functions:
-Full text searches can be made in the file -by word, character, subject etc.,
-An interactive table of contents, and hypertext notes,
-Hotlinks to internet resources,
-Access to web sites that provide additional information about the work (specialized documentation, reviews, articles, etc.).
Savings of from 30% to 80%:
-30 % to 40 % cheaper for new or recently released titles, that are -available in bookstores,
-50 % to 80 % cheaper for backlist titles

The management

The two founders started to work on the 00h00.com project during the summer 1997, and founded the company in January 1998.

Jean-Pierre Arbon (graduate of France's leading business schools –HEC, IEP Paris)
Chairman and CEO

Born in 1953, J-P Arbon has been the Managing Director of Flammarion, France's 4th largest publishing company, from 1988 to 1997.
In this position he has been able to acquire a unique understandjng of the publishing industry and to develop an extensive list of contacts in this field. He has a deep professional insight of the business, of its problems, and of the challenges it is now facing.
Previously, J-p Arbon worked for ten years with L' Oreal's pharmaceutical division (Synthelabo) where the last position he held was executive Vice President for International Operations.
He takes care of the editorial policy and of finance.
Email : jpa@00h00.com

Bruno de Sa Moreira (32 years old bachelor of Sociology from La Sorbonne.
graduate of France's leading business school -HEC. and Graduate film studies at UCLA)

General Manager From 1995 a 1997, Bruno de Sa Moreira has been Director of Flammarion Multimedia, where he produced a dozen CD-Roms, several of which received prizes, and went on to be popular titles in foreign markets.
From 1993 to 1994, he had been Marketing Manager for the European Union's support platform for independent European audiovisual producers. At 00h00.com, Bruno de Sa Moreira focuses mostly on technical and production aspects, as well as sales and marketing policies.
Email: bsm@00h00.com

Shareholders

The capital of 00h00.com is divided among the two founders (50%) and a dozen private people, including:
-Alain Bankier, President of Banexi New York,
-Alain Sourisseau, former Managing Director of the French business daily Les Echos,
-Caroline :Mille-Langlois, Communication Director, Alcatel,
-Michel Serres, member of the French Academy, professor at Stanford University
-a partner of the Rothschild Bank in Paris
-GYOZA MEDIA and Cory McCloud

Our development strategy

The present ambition of 00h00.com is to evolve to a digital multi-format publisrung platform, whereby all texts for which it holds

the digital rights will be possibly supplied in all available digital formats.

In this perspective, it is interesting to mention that 00h00.com is in a position to receive substantial and quick support from the French Ministry of Education and the French Ministry of Culture for a variety of pilot experiments, including digital classrooms, reading for visually disabled people, etc.

In addition to moving to the new digital formats (eBooks, etc.), the main axis are as follows:

Position 00h00.com as a partner for traditional publishers, and not as a competitor. This will be done by providing a part of the system and web site to publishers who wish to publish digital editions of their books without assigning rights.

Develop our catalogue

Our editorial choices are not based on an idea of quantity, but rather on the quality of the titles selected. The 00h00.com list will be built around series/ community couples, with a focus on those virtual communities that already exist. The catalogue will also include the titles from publishers with whom we will have on-line distribution agreements. We will give special attention to titles that will have added value in their on-line editions.

International development

The first French on-line publisher will be duplicating its activities in other countries, progressively, either through partnerships in target markets, or directly from Paris. Partners have been identified in the UK and Italy, and contacts are carried out in Germany, Norway, Canada, Brazil.

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Rocky Laroia

Manager of Mobile Storage Strategy and Planning, Storage Systems Division IBM

www.aps.org

Rocky Laroia is currently responsible for strategies and plans for IBM's mobile storage business, and has been in this position for the last two years. He has a deep understanding of the IT industry, having spent the last 25 years with IBM in various assignments including sales, technical support, marketing, planning and corporate strategy. Rocky has worked with IBM in various locations, including corporate headquarters in Armonk, NY and Asia Pacific headquarters in Tokyo, Japan. He is currently located with IBM's Storage Division in San Jose, CA.

Rocky has been responsible for introducing the IBM microdrive into the marketplace, in addition to updating the family of Travelstar products, which are 2.5" hard drives used mainly in Notebook PCs. Rocky holds a bachelor's degree in engineering, and an MBA in marketing from Indiana University.

Hard Disk Drives in E-books

September 1999

Rocky Laroia
IBM Corporation
laroia@us.ibm.com

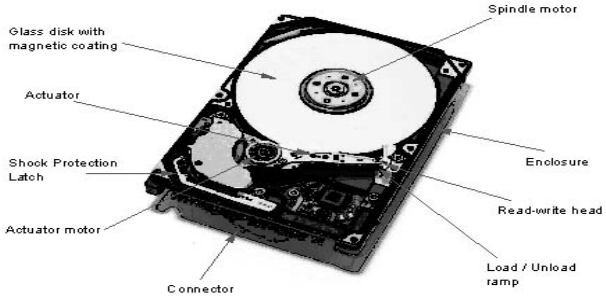
Why Hard Disk Drives

- Read / Write Capability
- Non Volatile Storage
- Small Size
- Random Access Capability
- Large Storage Capacity
- Good Performance Characteristics
- Low $/MB
- Low Power Consumption
- Good Ruggedness

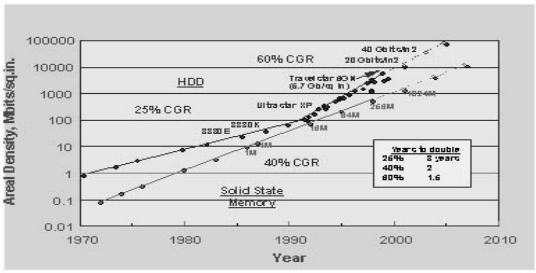
IBM and Hard Drive Technology

- Developed the first computer disk drive in 1956
- Introduced the first removable disk in 1962
- Introduced Winchester drive technology in 1973
- In 1978, received the first patent for RAID technology
- Introduced thin film head technology in 1980
- Invented the magneto-resistive (MR) head
- Delivered the first drive using GMR technology in 1997
- Began shipping the IBM microdrive in 1999

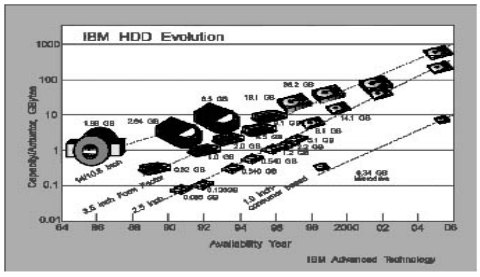
Hard Disk Drive



Recording Technology Advance



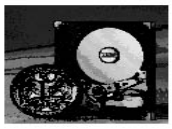
HDD Form Factor Evolution



IBM Travelstar 12GN

Disk Diameter	2.5 inch
Storage Capacity	12 GB
Rotational Speed	4200 RPM
Data Channel Performance	66.6 MB/Sec
Seek Time (avg.)	12 ms
Ruggedness (non-op shock)	800 G / 1 ms
Power requirement	+5VDC (+-5%)
Weight	99 g
Size	100 x 70 x 9.5 mm
Volume	4 cu inch
Approximate cost	$0.01 / MB

IBM Microdrive



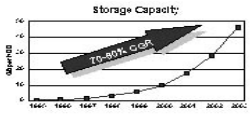
Form Factor	CF+ Type II
Capacity	340 / 170MB
Rotational Speed	4500 RPM
Maximum data rate	3.0 MB / sec
Seek Time (avg.)	15 ms
Ruggedness (non-op shock)	1000 G / 1 ms
Power Requirement	3.3V or 5.0V
Weight	16 g
Size	42.8 x 36.4 x 5.0 mm
Volume	.5 cu inch
Approximate cost	$0.50 / MB

IBM HDDs in E-books

- 340 MB microdrive
  - 850 novels (400 pages each)
  - Semester's worth of student text in college (10 text books)
  - Legal / medical textbooks (with graphics)
- 12 GB Travelstar
  - 12 million pages of text
  - 50 magazines (with color and photos)
  - .5 million web pages (with graphics)

The Future

- HDD technology will improve exponentially

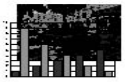


- New applications become possible

Video and sound in books

Magazine subscriptions

Newspaper subscriptions



Graphics and pictures in books

http://www.ibm.com/storage

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Bob Stein

CEO

Night Kitchen

www.nightkitchen.com

Bob Stein is the CEO of Night Kitchen, a company dedicated to developing a new class of authoring tools for the next generation of electronic publishing.

Stein was the founder and creative director of The Voyager Company, where for13 years he led the development of over 300 titles in The Criterion Collection, a series of definitive films on videodisc, and more than 75 CD ROM titles.

In an age of digital euphoria, Stein has argued the profound impact of the new technolgies on human communication, but sharply challenges the view that technology itself is the engine of human progress. "People themselves are the real agents of social transformation. Technology is a merely a tool, one that surely shapes human consciousness, but must ultimately be wielded by the best wisdom the species can acquire."

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

NIST

Gaithersburg, MD

Johan Bergquist

Senior Technology Analyst

Asian Technology Information Program

www.atip.or.jp

Dr Johan Bergquist received his M.Sc. and Ph.D in Physics from Chalmers University of Technology, Sweden, in 1988 and 1994, respectively.

In 1988, he joined Canon Research Center, Japan, where he for four years worked on nonlinear optics in semiconductor quantum wells, optical materials for real-time holography, and R&D of integrated optical communication devices. Dr Bergquist also spent one year at the company's R&D headquarters where he was evaluating flat panel display (FPD) technologies such as field emission, active and passive matrix liquid crystal displays, and ferroelectric LCDs. In 1994 he spent one year as a postdoc at the University of Electro-Communications, Tokyo, where he was supervising graduate students, teaching optics (in Japanese), and conducting research on liquid crystal materials for optical storage and image processing. In 1995, Dr Bergquist joined the Tokyo office of the Asian Technology Information Program (ATIP), a US non-profit organization that collects, analyzes, and disseminate information on Asian Science and Technology. As Senior Technology Analyst at ATIP, he completed a 3-year DARPA project and published over 50 reports on all aspects of FPDs.

Recently, Dr Bergquist's interests have focused on display technologies for wearable and portable computers, including electronic books, and he also organized an international workshop on the subject in February, 1999. In September 1999, Dr Bergquist joined Nokia Research Center, Tokyo, as a Senior Research Engineer.

Next Generation Display Technologies for Electronic Books in Japan

Johan Bergquist
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Nokia-Japan Co., Ltd.,
Nokia Research Center
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Introduction

With the advent of personal digital assistants (PDAs) with built-in third-generation cellular phones and other viewing devices with high-bandwidth wireless communication capabilities, information-rich content such as sound, color pictures, and video clips literally becomes available at the fingertip. While high-bit rate wireless systems, signal processing, and storage technologies are all available, low-power tecnologies for high-resolution multimedia displays are yet to be developed.

Book authoring in Japan is, as in most countries, still being done in the traditional way of linear writing without any hypermedia links. Although many paper books are accompanied by multimedia CD-ROMs containing information on the author etc:, the titles themselves are still text- or cartoon (Manga) based with little adoption to hyper linked multimedia. As a result, Ebook publishing in Japan, at least initially, does not require full-color or full-motion displays and the attention is therefore being drawn to high-resolution displays without color capability. As the multimedia content of titles gradually increases, though, the requirements on more advanced display devices become more pronounced.

In contrast to Western languages, Japanese and Chinese use ideographs (kanji) with considerably larger complexity than, for example, roman letters. As a result, photo typesetters, laser beam printers, and displays with higher resolution are needed to make the characters appear legibly. Rasterizing ideographs accurately on output devices using scalable fonts also presents problems and non-scalable bitmaps are therefore still common in many viewing systems.

Book publishers in Japan keep a large portion of their manuscripts originals on paper and digitizing and adopting them for multimedia publication is therefore an insurmountable task. Although technologies for Japanese optical character recognition (OCR) have advanced considerably, older manuscripts containing archaic characters are not recognized accurately. This together with a desire to preserve the often delicate page layout and typography of the original manuscripts, make publishers prefer digitizing the titles as bitmap images, a fast and straightforward approach which ensures rapid distribution of existing titles. The promotion of bitmap data over tagged XML text is also fueled by the cartoon version (manga) of a story, which often sells more than ten times the number of copies compared to the text version.

Given these circumstances, it is clear that the Japanese publishing industry, at least initially, will require display devices with high resolution but not necessarily with grey scale or multimedia capability. This talk reviews the EBook display requirements by publishers and compare different technologies.

Display Requirements for Electronic Books

A majority of the Japanese EBook consortium member companies are publishers which require the displays to render pages as closely as possible to conventional books. In addition, consumers will require low weight, pocket book size, small thickness, good reading legibility, low cost, portability, and ruggedness. These requirements are particularly severe in Japan since most people read books while commuting in crowded trains, often standing for several hours. To gain consumer acceptance, EBooks must comply with the same portability as ordinary commuter editions of novels.

The battery life of notebook computers was originally heavily dependent on the choice of display technology (reflective or backlit). Now that processor speeds have been increased and peripherals options added, the display is no longer the power budget-limiting device. Progress in battery technology and a wider array of display choices make system designers focus on limiting the power of other components instead.

Electronic books have a form factor and cost limit that do not allow for large battery capacity. As they do not require the full functionality and processor speeds of a notebook, however, they consequently consume less power. On the other hand, since the display will have to be switched on continuously without frequent recharging, the power consumption of the display device becomes a key parameter.

Assuming that the electronics of today's PDAS are sufficient for electronic books, the remaining power budget for the display calls for a maximum power consumption of about 50 mW, a requirement that presently only reflective displays can meet. This should give the user a battery life comparable to that of a mobile phone. Thanks to reduced voltages in CMOS circuitry, system power consumption is falling and will soon reach 2.5 V which puts further requirements on display driving.

Although no display technology today can challenge the resolution of photo type setting and printing, a resolution sufficient for displaying 12point ideographs legibly is a minimum requirement. This translates to a resolution of at least 200 dots per inch (DP!). Many displays are, in contrast to printing, capable of showing grey scales which reduces the need for spatial dithering (screen) when showing images. Moreover, fast displays can also perform time-domain dithering which further reduces the need for screening. A fast 200-dpi device with some grey scale is therefore in most cases sufficient for displaying both simple black-and-white images and text legibly.

Apart from resolution, optical properties such as brightness, contrast ratio, and viewing angle should be similar or better than printing paper. One advantage over paper is that illumination can be incorporated in the reflective display and an EBook can therefore be used even if there are no external light sources present. When optimizing the performance of a reflective display, there is generally a trade-off between contrast ratio and brightness. For text-only displays, a moderate contrast ratio of 1:10 is in most cases sufficient and the reflectivity can thereby be brought to more than 60%. Symmetric light scattering over the entire viewing cone is essential to keep glaring low. The size of the display is essentially determined by the form factor of the EBook which corresponds to the size of a pocket book. It is also essential that a page can be viewed in full without scrolling. For non-book applications such as newspapers this might prove difficult but increasing the resolution and displaying the content at a reduced size can partially solve this problem.

Bistable Displays

Bistable displays are sometimes referred to as “electronic paper” because grey scales are simulated by dithering. As a potential replacement for printing, the resolution must be sufficiently high for preserving typography, rendering of complex Japanese ideographs and line-art drawings (cartoons), and dithering of images.

Bistable displays are promising candidates because they do not consume any power except when the contents is changed. A drawback is that dithering is necessary which reduces the line density available for images.

Ferroelectric liquid crystal displays

One of the first commercial bistable technologies is surface-stabilized ferroelectric liquid crystals (SSFLC) which was used by Canon in their 15-inch desktop monitor. A passive matrix driving scheme allowed for small pixel pitches without the then high production costs of thin-film transistor (TFT) LCDs. Because desktop computers require grey scale, some of the available subpixels were used for spatial dithering which reduced the pixel count to 1024x768 (XGA). Canon later demonstrated a modified prototype of this display (“document viewer”) with 3200x2560 pixels and a resolution of 282 pixels per inch (PPI). In contrast to the monitor, this display had no spatial dithering or subpixelation and could consequently not display grey scales. The viewer was considered to be a replacement of a printer when viewing proofs.

With its fast switching speed, bistability, low power consumption, wide viewing angle, and simple structure, SSFLC is an interesting candidate for electronic books if it can be made in the reflective mode, and if the temperature range can be extended. For ruggedness, it is also desirable to employ plastic substrates. Idemitsu Kosan has demonstrated an SSFLC device (no pixels though) with a flexible substrate and prof Shunsuke Kobayashi’s group at the Tokyo Science University at Yamaguchi, has an interesting approach of incorporating the plastics (polymers) into the FLCs themselves.

Sumitomo has developed a plastic substrate for manufacturing inexpensive FLCDs by a printing technique6. The displays, which primarily are aimed at smart cards, can presently be manufactured up to a size of six inches and prototypes with 1:8 contrast ratio, <5V driving voltage, and <100 ms response, have been demonstrated. The flexible substrate allows for a bending radius of 1.5 cm and a pressure of 10 kg/ cm^2.

Employing active matrix (AM) driving to bistable PLCs enable temporal dithering and extension of the temperature range. However, this leads to a more complex structure, increased power consumption, and a smaller aperture ratio so this approach is likely to be limited to multimedia displays.

Bistable twisted nematic displays

Bistable twisted nematic (BTN) displays is a passive-matrix technology being developed by Citizen and incorporated in display devices from Kyocera. A fast response of a few ms, high contrast ratio and brightness and a low power consumption are its main advantages but the number of colors is limited. With dithering, BTN may prove applicable to multimedia displays but the presently limited resolution does not make it suitable for electronic books for the time being.

Micro optoelectro-mechanical displays

Reflective displays based on bistable micro optoelectro-mechanical systems (MOEMs) are potentially very attractive

because of the mirror-like surface which ensures brightness and contrast performance on par with or better than paper. So far, this technology has predominately been used in projection displays with devices developed by Texas Instruments, Echelle, and Daewoo. If the display size can be increased from today's -2 inches, MOEMs technology can prove very promising for direct-view displays for both multimedia and te~t. Toshiba has recently proposed2 an electromagnetically actuated film display (AFD) which is based on addressable stacked Cyan, Magenta and Yellow (CMY) subtractive color filters on a white background, thereby mimicking conventional color printing. The prototype measures

only 8x8 pixels with a pitch of 0.5xl mm but recent developments in MOEMs manufacturing will allow finer pixel pitches.

Cholesteric LCDs

Cholesteric LCDs (ChLCDs) are another bistable display device with good contrast ratio and reflectivity. Because of the bistability, power is only consumed when the contents changes. Its major disadvantages have been a high driving voltage of more than 40 V, slow response of several seconds, and lack of achromaticity and grey scale capability. The passive matrix structure is inexpensive to manufacture at a high resolution of more than 200 DPI which makes it a suitable candidate for electronic books. In Japan, ChLCD research is mainly on the material level but Toshiba has demonstrated a prototype display with an active matrix that reduces the driving voltage to below 20 V. Kent Displays have demonstrated prototypes on plastic substrates with some grey scale capability and improved response speed although it is still far from video requirements. Given this progress, ChLCDs might therefore be the choice for high-resolution Ebook displays in the immediate future.

Displays without memory effects

Backlit passive and active matrix twisted nematic (TN) and super twisted nematic (STN) LCDs exhibiting grey scale capability have long been employed in both notebook and desktop computers. Because of the need for constant power, high backlight power consumption, low transmittance, and limited resolution, though, they have not been suitable for EBooks. Reflective versions of these displays have been employed in PDAs but the brightness has been poor due to the two crossed polaris(4,fs. Color TN displays are even darker because of the limited transmission of the color filters. Instead, one polariser and polymer dispersed liquid crystals (PDLCs) or guest-host LCDs have been employed to increase brightness. TFT driving ensures video speed and reflective TFTLCDs are already commercially used in PDAs and still video cameras.

Sharp recently presented[4] a new 2.5-inch reflective TFTLCD with a 30% brightness, a contrast ratio of 1:32, and a response speed of 12 ms. This is close to printed paper and it is in addition capable of showing video. However, the resolution is still limited to 140 PPI which is too low for Ebook requirements.

IBM recently demonstrated[3] a 320-DPI 4-inch reflective guest-host LCD prototype with a contrast ratio of 8:1 and a reflectivity of 60%. If this display can be made twice as large and the high driving voltage of 10 V reduced, it is an interesting candidate for EBooks.

Transmissive high-resolution TFTLCDs for document viewing are also being pursued although the power consumption of the backlight makes it less suitable for low power portable EBook viewers. NEC1, for example, has shown a 11-inch diagonal document viewer with a resolution of 177 DP! and 1600xl200 pixels capable of showing a US letter-size page in full. The display has a luminance of 110 cd/m2, a contrast ratio of 130:1, and can display 262,144 colors. The company recently released an analog (i.e. full color) 9.4inch display with the same pixel number but at a resolution of 211 DPI. With an aperture ratio of 5~% and a brightness of 250 cd/m2, the backlight power consumption is likely to be too high for portable EBooks. NEC hopes to market the product to manufacturers of EBook and digital still cameras, the pixel count of which is approaching 3 million.

Conclusion

EBooks for text and dithered images have a vast array of display technologies to choose from. Bistable technologies on plastic substrates offer cheap, portable, and rugged solutions with high resolutions and low power consumption. Due to a slower switching speed, FLCDs have an advantage over ChLCDs but issues such as mechanical stability, cost, and temperature range still remain. Furthermore, FLCDs do not, in principle, have any resolution limit and small crosstalk which make them the most likely candidate.

As multimedia content increases, emissive display technologies with high color purity and fast response will be required. As the bulk of information in EBooks will be text-based in a foreseeable future, there is no immediate demand for a high-resolution, full-color, full-motion display. Instead, multi media-capable EBooks will possibly comprise two display technologies. One strong candidate is likely to be organic light emitting diodes (OLEDs) on plastic substrates which indeed can be integrated on the same substrate as, for example, a flexible FLCD.

Finally, user interfacing will require advanced touch screen technologies integrated into the displays.

Acknowledgement

This work has been done under the Flat Panel Display Project of the Asian Technology Information Program and funded by the United States Display Consortium and the High Definition Systems Program of the Defense Advanced Research Projects Agency. For more information on the project, visit

http://www.atip.or.jp/fpd

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Electronic Book '99

"The Next Chapter"

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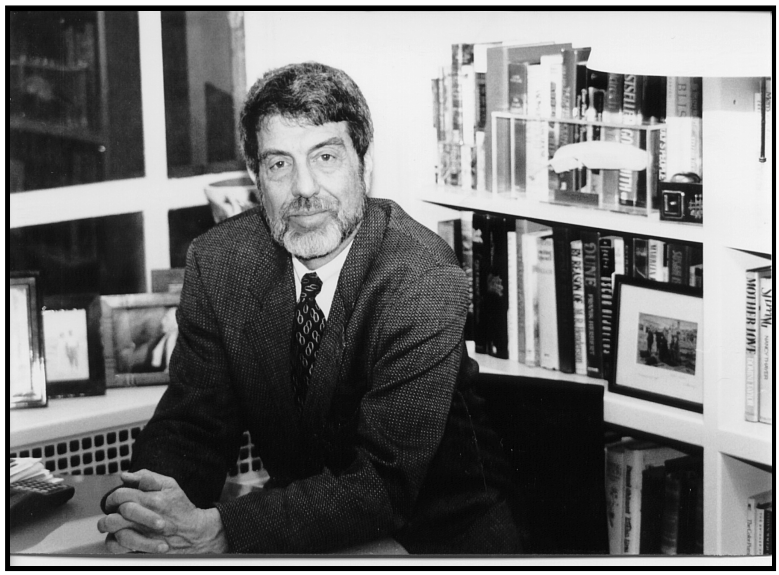
Gaithersburg, MD

Richard Curtis

President
E-Rights

www.e-rights.com



Early in 1999, literary agent Richard Curtis announced the formation of E-Rights, the Electronic Book Clearinghouse. E-Rights is the online service devoted to helping authors recover the rights to their out-of-print books, convert them to e-book and printed-on-demand formats, and sell them on the company's web site. The site, currently under construction, is called E-Reads.

The creation of an Internet company represents a great leap for Curtis, who is best known as a leading New York literary agent and well known author advocate. He is also the author of numerous works of fiction and nonfiction including several books about the publishing industry. With E-Rights/E-Reads, he has put his money where his mouth is, operating it on the same principle of an "author-centric" publishing industry that he has advocated for many years.

Curtis graduated from Syracuse University in 1958 with a BA in American Studies and from the University of Wyoming with a Masters degree, also in American studies. He joined Scott Meredith Literary Agency after graduation, and was foreign rights manager there for seven years. In 1967, he launched a freelance writing career, and has had some fifty books published by many major houses. In the early 1970's, he began his own literaryagency, and in 1979 incorporated it. Richard Curtis Associates, Inc. currently represents about 100 authors in all fields and reports millions of dollars in annual sales for leading authors in every area of nonfiction and in such categories of fiction as romance, westerns, thrillers, science fiction, and fantasy.

His interest in emerging media and technology has enabled him to help authors anticipate trends in publishing and multimedia. He has lectured extensively and conducted panels and seminars devoted to raising consciousness in the author and agent community about the future of communication.

He was the first president of the Independent Literary Agents Association and President of the Association of Author's Representatives in 1996 and 1997. His company served for over a decade as agency for the Science Fiction Writers of America. In 1994, he received the prestigious Romance Writers of America Industry Award for Distinguished Service to Authors. In 1999 he accepted an invitation to serve on the editorial advisory board of *Writer's Digest.*

He currently resides with his wife and son in Manhattan. His hobbies are sports, music, and painting. His watercolors have been exhibited at professional shows in New York City.

CONTENT SPOKEN HERE

Presentation for Electronic Book 99

by Richard Curtis

Not long ago I was introduced to a gentleman in the technology field who didn't know much about publishing. "And what do you for a living?'" I said, "I'm a literary agent." He looked at me blankly. I said, "I represent authors. I sell their manuscripts to publishers. I negotiate their book contracts." More blank stares. Finally, I said, "I deliver text formatted for analog print on paper applications." He brightened and snapped his fingers. "Aha!You're a content provider. Why didn't you say that to begin with?"

Then I told him, "And we do it over three hour lunches in expensive restaurants." He shook his head and said, "Now, that really doesn't compute."

Like many of you, he came from what you might call the New World of Content. Its language and culture are very different from that of the Old World of the publishing industry. In that world, content providers called authors, using low speed, obsolescent serially wired analog word processors called brains, produce blocs of text called manuscripts. They upload them manually to wheeled delivery systems known as postal trucks, which port them at thirty to forty MPH to information storage and retrieval centers ,called publishers. There, document managers called editors perform spell and grammar check on the text, cut and paste it, massage it and frequently delete it, often sending power surges into that corrupted Commodore 64 circuit board called the author's heart. In due time the text is formatted for bound printouts called books and delivered to brick and mortar content distribution kiosks called book stores. Because the author does not have an e-commerce terminal he must effect cache memory transfers to his account called loans from his agent.

I was one of the few representatives of this Old World of content who attended last year's NIST Conference. I listened raptly to lectures about PC download encryption and high resolution graphics. I swayed to the music of science and technology as speaker after speaker sang of PDF and RTF, HTML and XML, DPI and RPI and Dill and VIP and RBI and TLC and NBC and USA. I love when technologists talk dirty: Tiff, Gif, Zip Drive, J-Peg. Half the men in the audience were ready to leave their wives for the woman who spoke at last year's conference about battery life. In her mouth, "Nickel Cadmium" was like Eartha Kitt singing "Santa-Baby".

When I contemplated launching an e-book business, I realized that if technology and publishing are really going to walk hand in hand into the gleaming future, they must understand each other's language, customs, and culture. So, I'm here not just as a representative of my company but as a kind of translator as well. Welcome to my world.

The first time I saw a CD-ROM about a decade ago I knew that electronic books were only a matter of time. Like many other publishing people I thought e-books would be driven by CD-ROMS. We didn't anticipate the Internet as the information delivery system of choice. I was certain of one thing, though: that control of the electronic rights to books would be the key factor in the success of

any e-book industry. So, my agency launched an aggressive campaign to recover the rights to out-of-print books by its clients so that one day they could be republished. I urged my fellow agents to do the same for their clients, too.

That was the inspiration for the formation of E-Rights. E-Rights is a clearing house that helps authors to ascertain the in-print or out-of-print status of their books and to recover the rights to the ones that are dead in the water. It was clear to me that in order for those old books to have any value in an e-book world, they must be computer readable. So, E-Rights added the services of scanning and OCR-ing printed books. Then, after the aIU1ouncements last year of those twin miracles, e-books and print-on-demand presses, E-Rights added to its services the encryption and conversion of digitized books, so that no matter what the medium -e-books, print-on demand, PC download, or applications yet to be invented -authors would be ready to roll with their books.

But I was still thinking like a literary agent, thinking yes I have the rights to all these books, but whom am I going to license them to? That's when I had my second inspiration: Why license them to anybody? Why not publish them myself? Now, that may seem like a no-brainer to you systems engineers, but where I come from, for a literary agent to become a publisher is like a shepherd becoming the foreman of a slaughterhouse. The literary agency profession is a very ethical one and it took a lot of walks in the park before I found solutions that I, my clients, my agent colleagues, and authors could be comfortable with.

Then the epiphanies started coming thick and fast. Why stop at E-publishing these books? Why not become a retailer for them as well? And why stop at being a retailer only for the books I controlled? Why not become one for books controlled by other publishers too?

That was the genesis of E-Reads. E-Reads is an online book distributor that sells titles to wholesalers, retailers, and directly to consumers in any format they like: e-book, hard copy, or PC download. You click on the title you want; a popup menu asks you how you want it, we charge your credit card, and you get your book. The E-Reads web site is in beta testing (as we

technical people are fond of saying) and will be fully operational in a couple of months. It will distribute not just its own list of titles but those of other traditional and online publishers as well. It is completely OEBcompliant.

In short, E- Rights and E- Reads offer one-stop shopping for clearing rights to books, adapting them to all electronic versions, and selling them through every imaginable commercial channel.

Our own publishing program will start with out-of-print books, but has begun to schedule original titles as well. Our first list will consist of books in the most popular, tried-and-true categories romance, science fiction, thrillers, westerns, and popular nonfiction. The way I figure it, if the e-book industry is to succeed it must reach the mass market -from the business traveler who loves a good thriller to the man or woman on the bus or subway who wants to read a good romance or science fiction novel. Here are some sample covers that we designed ourselves.

Why are we starting with out-of-print books? Like you, I cherish this compelling vision of introducing never-before-published books online. We all believe that the future of books and authors is online originals. E-Reads has a number of them in production as we speak, and eventually I believe it will become routine for books to be published originally online. But there's a big problem with originals -how are you going to validate them to readers? There is not yet a viable review, preview, or critical support system to help consumers know which books to buy and read among the millions offered to them.

With previously published books you don't have this problem. They come with pedigree. They are validated simply by virtue of the fact that name-brand publishers like Little, Brown or Simon & Schuster once thought well enough of them to publish them, and critics in name-brand publications like the New York Times thought enough of them to review them. We can now re-promote them to old and new audiences. Many of the authors such as our pre-eminent keynote speaker Harlan Ellison, or romance star Janet Dailey, or science fiction great Greg Bear, have extensive networks of fans who will be thrilled to know they can get their hands on those old books again. To use the popular term, previously published books are automatically branded.

When I surveyed the landscape of out-of-print books I identified about one million in the English language alone. So? What's to stop anybody from just scanning and publishing them? I've heard that question frequently in the last year, and that's what I love about technologists. Here's the problem, Barn! Here's the technological solution, now can we get the damn show on the road? I wish it were that easy, my friends. Rights clearance is certainly not a science, and I wish I could dignify it by saying it's an aR. But in fact, finding out who controls the rights to a book and securing the right to publish it can often be as complicated as untangling a cluster of paper clips, and just as tedious. But you cannot publish a book until you do it, which is why one of my parb1ers describes E-Rights as the most boring killer application he knows of.

There's some confusion about just what an out-of-print book is. Online book stores like Amazon.com and Barnes & Noble.com proclaim that they have millions of out-of-print books for sale. They do. But they're referring to <u>hard</u> copies of previously published , books. The book stores get them from publishers that are remaindering them, or getting rid of the overstock of books that are selling too slowly. That's all well and good. But what happens when Amazon or Barnes & Noble run out of those hard copies? That' s why, as presumptuous as it may sound, we take over where Amazon leaves off.

When I talk about out-of-print books, I don't mean rare or hard to find. I don't mean, "We hope to locate it for you in four to six weeks." I mean, like, dead. I mean, nowhere to be found at any price. Well, you say, why can't Barnes & Noble or Amazon just print up more copies? The answer is, they don't have the right to. They're not the publishers of those books. Okay, then, why don't they just ask the publishers to print up more copies? Because the publishers may not have the right to print more copies, either. The rights may have been reverted to the author. Even if the publishers do still own the rights, they may not feel if s economical to do a new printing, not even using print on demand technology. So, how then do we get these books back into print?

This is a job for E-Rights.

Sometimes that job is like a day in the country. Other times, you get something a little more challenging.

Take a hypothetical book, MY LIFE IN SKINNYDIPPING by Norbert Shmidlap in collaboration with Ernestine Scruggs. It was published in 1960 by a company named Coward McCann and your e-book outfit wants to reissue it. When you start asking around, you discover that Coward McCann went out of business over twenty years ago and you're not sure who bought the assets of the company. It takes you three months to track down the fact that it was G. P. Putnam, and another two weeks to learn that the assets of Putnam were in turn acquired by Penguin and is now called Penguin Putnam. It takes another three months for Penguin Putnam to locate the contract, and three more to learn the whereabouts of Norbert Shmidlap. He's six feet under. You finally get hold of Shmidlap's widow who tells you in exquisite detail how poor Norbert drowned ten years ago when a giant clam seized his, um… .and wouldn't let go. "That's a dam shame, Mrs. Shmidlap, but would you happen to know if your husband got a reversion of rights to his book? And where can I locate his collaborator Ernestine Scruggs?" "Well, I never did pay much mind to Norbert' s books but next time I go up into the attic..." I could go on and on, but you get the picture. It's a nasty job but someone's got to do it if you want that book back in print and you want to be sure there's a clear-cut chain of title.

This must come as painful news to those of you who have grown up believing that if you see a piece of text you like, you just hit the "copy" command, paste it, and forward it to all your friends on the Net. Unlike us folks from the content sector, who jealously protect the sanctity of intellectual property, many of you grew up with a strong sense of entitlement during the freewheeling early days of the Internet. And many of you still believe content should be given away free -unless of course you created it, in which case you will sue the ass off anybody infringing on it.

So, I can't blame technical people for fuzzy thinking about content. I can only remind you that a book is protected by

copyright law the moment it comes out of an author's brain and he fixes it on a

medium like paper, and until and unless that author assigns or licenses the rights to another party, the law prohibits reproduction or dissemination without the owner's express permission. Failure to do so will result in your receipt one day of a big fat lawyer letter.

That's copyright in a nutshell, but it is an extremely tough nutshell, and you need experts to crack it and tell you what's inside.

And there's more. Even when we're completely certain who owns the content, the owners may not want to sell it to you. Many of those owners -and I'm not just talking about publishers, but authors and agents as well- don't understand e-books and are afraid of the unknown. Many of them believe the market is too small to bother with. Many prefer to wait until the business shakes out and a few rich and powerful companies emerge to pay two million dollar advances like they do in the conventional publishing industry. And many are just too damn busy to research the rights situation to their books. You'd be shocked at the titles of classic books by major authors whose agents don't want to spend time and money going through twenty or thirty years of contract rues even when you tell them what treasures there are in them.

In addition to all that, there happens to be a major turf war going on between publishers and authors, and content is being held hostage. The issue is, is the display of text by electronic means an inherent right of a book publisher? Or is it a separate medium that should be reserved for the author to exploit, like other derivatives such as movie or audio rights? Do you know how much is riding on the answer to that question? Everything. Because control of content is control over the destiny of the book industry.

The traditional book industry is healthy in some ways but for decades it has been suffering from some fundamental problems. Books are returnable to publishers for credit, and the return rate on the average for trade books is 50%. The best business minds in the world have not been able to figure out how to make money with a system that accepts five hundred hard copies back for every thousand distributed. But that's what we have, and today's publishers are simply choking on their own waste. Their profit margins are under 5% and their overhead is huge, because traditional publishing is merchandise-driven and real-estate intensive, and let's not forget those three hour expense account lunches. To keep profits up, those houses have had to resort to what someone once called The Blockbuster Mentality, paying more and more money for superstar authors and abandoning their commitment to new and promising voices. Not only are authors discouraged, editors are too, because they are thwarted from achieving their mandate to help authors produce interesting, entertaining, and compelling works of literature.

While all this turmoil is going on in the traditional publishing industry, you have this new model called electronic publishing glistening in the sunlight. A model that isn't predicated on physical things or places - no cartons of returned books, no editorial offices, no warehouses, no bookstores, no trains, no planes, no trucks. Just an author, a reader, and a server between them adding value to the . author's precious work as it redirects the electrons from seller to buyer.

The great thing about this emerging alternative is that it makes authors want to publish their books on it, and that will eventually be the greatest boost of all to the e-book industry. The term I use for this model is "authorcentric." If you define a publisher as an entity that prints, distributes, and advertises books, you can see at once that every one of the processes performed today by publishers can be accomplished by authors, and in some cases authors can do it better. They can maintain electronic rues with companies like Lightning Print and print copies as ordered with no returns whatsoever. They can promote their own books on their own home pages. And they can distribute books electronically or, for the more successful authors at any rate, through Barnes & Noble, Ingram ,Amazon, Baker & Taylor, Borders, and other wholesalers and retailers. And because in this new paradigm authors end up having greater control over publication of their own books, and most of their overhead is eliminated, it stands to reason they should enjoy far more profit from their creations than they ever earned from traditional publishers. Ebook publishers like E-Reads are offering authors up to ten times the royalty they can earn on the same book from traditional publishers.

Authors making a living from their writing? This is revolutionary talk. I'm sure most of you don't think of yourselves as revolutionaries. But —you who produce those batteries that will run my e-book for 100 hours, or a screen as bright as white paper in sunlight -the implications of your work are indeed utterly revolutionary .

While you prodigiously talented people perfect your incredible inventions, you must never forget that without that other prodigiously talented group of men and women called authors, the electronic book will never be more than a brilliantly designed, really cool, paperweight. When yQ!:! talk about content you talk about blocs of digitized text that can be massaged and manipulated and delivered in an instantaneous burst of electrons. But when authors talk about content, they talk about the contents of their brains, the contents of their hearts, the contents of their souls. And today you'll meet a denizen of that world who will talk about the contents of his guts.

There are today thousands and thousands of authors like him burning to share that content with you, to share their spiritual vision, their moral values, their sense of order and architecture and beauty, their wisdom, their yearning, their pain, their joy. Authors are the "book" half of the term "e-book." Like it or not, you're married to each other. Long life to you both.

Thank you.

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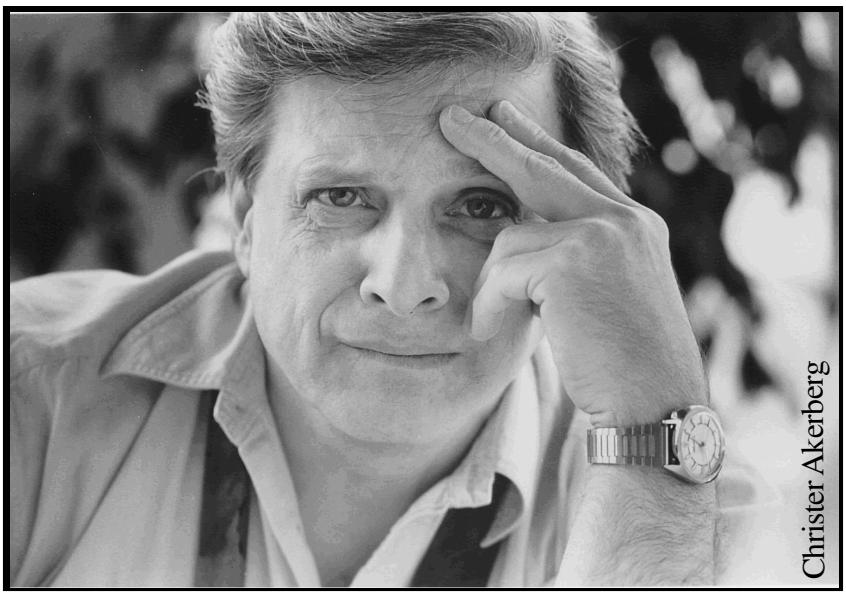


Harlan Ellison

Author

HARLAN ELLISON has been called "one of the great living American short story writers" by the Washington Post; and the Los Angeles Times said, "It's long past time for Harlan Ellison to be awarded the title: 20th century Lewis Carroll."

In a career spanning more than 40 years, he has won more awards for the 75 books he has written or edited, the more than 1700 stories, essays, articles, and newspaper columns, the two dozen teleplays and a dozen motion pictures he has created, than any other living fantasist. He has won the Hugo award 8 1/2 times, the Nebula award three times, the Bram Stoker award, presented by the Horror Writers Association, five times (including The Lifetime Achievement Award in 1996), the Edgar Allen Poe award of the Mystery Writers of America twice, two Audie Awards (for the best in audio recordings,) the Georges Melies fantasy film award twice, and was awarded the Silver Pen for Journalism by P.E.N., the international writers' union (this prestigious accolade was presented for his columns in the L.A. Weekly, titled "An Edge in My Voice," in defense of the First Amendment). After writing the columns for only 29 weeks, he beat out candidates from the L.A. Times, the N.Y. Times, and the Washington Post. He was presented with the first Living Legend award by the International Horror Critics at the 1995 World Horror Convention. He is also the only author in Hollywood ever to win the Writers' Guild of America award for Most Outstanding Teleplay (solo work) four times, most recently for "Paladin of the Lost Hour" in his Twilight Zone episode that was Danny Kaye's final role, in 1987. In March (1998), the National Women's Committee of Brandeis University honored him with their 1998 Words, Wit, & Wisdom award.

He has drawn attention to the art of writing by performing the remarkable feat of actually creating and writing and completing stories in the windows of bookstores (in Paris, London, New York, Boston, Los Angeles, San Francisco, New Orleans and elsewhere) in full view of large audiences; stories that have gone on to win major awards and literary prizes. To gain background for his first novel, dealing with juvenile delinquency, he went under an assumed name and ran with a kid gang in Brooklyn's dangerous Red Hook sections for ten weeks. He has covered and written about civil rights marches, riots, antiwar demonstrations and other scenes of civil unrest. His two books of TV essays, THE GLASS TEAT and THE OTHER GLASS TEAT, have sold millions of copies and are currently being taught in media classes in more than 200 American Universities.

Ellison has traveled with rock groups such as The Rolling Stones, and his novel of the scene, SPIDER KISS, is called by music critic Greil Marcus "...the finest novel about the world of rock in the past quarter century."

In a 1980 landmark lawsuit he sued and beat ABC-TV and Paramount Pictures for $337,000 when they

plagiarized a television series he had created. This was the famous Brillo/Future Cop case.

Among his most recognized works, translated into more than 40 languages and selling in the millions of copies, are DEATHBIRD STORIES, STRANGE WINE, APPROACHING OBLIVION, I HAVE NO MOUTH & I MUST SCREAM, WEB OF THE CITY, LOVE AIN'T NOTHING BUT SEX MISSPELLED, ELLISON WONDERLAND, MEMOS FROM PURGATORY, ALL THE LIES THAT ARE MY LIFE, SHATTERDAY, STALKING THE NIGHTMARE; and as creative intelligence and editor of the all-time bestselling DANGEROUS VISIONS anthologies and MEDEA: HARLAN'S WORLD, he has been awarded two Special Hugos and the prestigious Milford Award for Lifetime Achievement in Editing.

His latest publications include: THE ESSENTIAL ELLISON (Nemo Press, 1987; Morpheus, 1991), an enormous 1,000+ page, thirty-five year retrospective of his work; ANGRY CANDY (Houghton Mifflin, 1988), winner of the 1989 World Fantasy award for Best Short Story Collection and listed in the Encyclopedia Americana Annual as one of the major works of American Literature for 1988; HARLAN ELLISON'S WATCHING (Underwood-Miller, 1988), a compilation of 20 years of film criticism; THE HARLAN ELLISON HORNBOOK (Penzler Books; Mirage Press, 1990); HARLAN ELLISON'S MOVIE (Mirage Press, 1990); DREAMS WITH SHARP TEETH (Book-of-the-Month Club, 1991); MEPHISTO IN ONYX (Mark V. Ziesing, 1993); MIND FIELDS (Morpheus, 1994) with Polish artist Jacek Yerka; I, ROBOT: THE ILLUSTRATED SCREENPLAY (based on Isaac Asimov's story-cycle; Warner Books, 1994); THE CITY ON THE EDGE OF FOREVER screenplay (Borderlands Press, 1995 and White Wolf, 1996); SLIPPAGE (Mark V. Ziesing, Houghton 1997); and the coffee table edition of "REPENT, HARLEQUIN!" SAID THE TICKTOCKMAN (Underwood Books, 1997) with paintings rendered by Rick Berry.

May (1996) saw the publication, by White Wolf Publishing, of EDGEWORKS: The Collected Ellison (Vol 1). This first of a series of 20 volumes of the collected fiction, essays, teleplays and columns contains the books AN EDGE IN MY VOICE and OVER THE EDGE, with completely revised, updated and expanded manuscripts...the variorum texts! November (1996) saw the publication of the second EDGEWORKS omnibus, containing the books SPIDER KISS and STALKING THE NIGHTMARE. May (1997) marked the third volume of the noted EDGEWORKS series, containing THE HARLAN ELLISON HORNBOOK and HARLAN ELLISON'S MOVIE. EDGEWORKS #4 was published November 1997 and contained the books LOVE AIN'T NOTHING BUT SEX MISSPELLED and THE BEAST THAT SHOUTED LOVE AT THE HEART OF THE WORLD. EDGEWORKS #5 (September 1998) will see the first time Ellison's landmark TV columns THE GLASS TEAT and THE OTHER GLASS TEAT will be published in one volume.

Ellison works currently in the pipeline for film and TV include: MEFISTO IN ONYX, PHOENIX WITHOUT ASHES, "Wanted in Surgery," and "The Human Operators," (based on a short story co-written with A. E. can Vogt), which aired early in 1999 as part of the Outer Limits series.

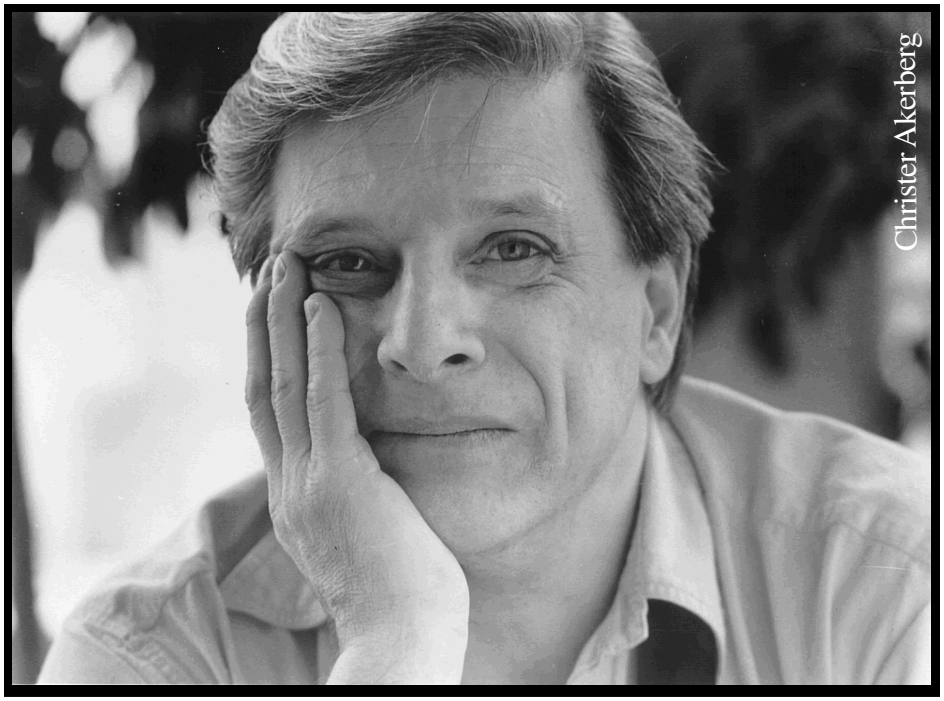
Ellison served as Creative Consultant on the revival of the CBS-TV series The Twilight Zone until in late November of 1985, at which time he resigned (to considerable media attention) due to network censorship of a script dealing with racism that he had written and was in the process of directing. Ellison is currently in his fifth season as Conceptual Consultant for the extremely popular syndicated hit series, Babylon 5, which premiered January 1994. Recently, Ellison adapted his short story "The Face of Helen Bournow" as a teleplay for an upcoming Showtime cable series.

Also a member of the Screen Actors Guild (SAG), Ellison has voiceover credits for shows including Pirates of Darkwater, Mother Goose and Grimm, Space Cases, Phantom 2049, the Sci-Fi Channel, and Babylon 5 (in the episode titled "Ceremonies of Light and Dark" Harlan plays the Voice of the B5 Computer, and in the episode "Day of the Dead" you can hear him as "Zooty."). Ellison's first TV appearance as a fictional character was also on Babylon 5 in the episode "The Face of the Enemy". He played a Psy-Cop opposite Walter Koenig as "Bester." His latest acting role was as the mysterious "Grifter" in the series Psi Factor. Mr. Ellison has also done many Spoken Word recordings (most recently on Dove Audio's cassettes of the 1912 Titanic hearings) and has received Grammy nominations for his recordings. For over five and a half years, he was the weekly commentator on the USA Networks "Buzz" show.

On 30 April 1999, Mr. Ellison won two Audie Awards (presented by the Audio Publishers Association to honor the best in audio recordings) in the categories of Solo Narration, Male, for reading Ben Bova's CITY OF DARKNESS (published by Dove Audio) and Multi-Voiced Presentation, as a part of an all-star cast reading THE TITANIC DISASTER HEARINGS: THE OFFICIAL TRANSCRIPT OF THE 1912 SENSATORIAL INVESTIGATION by Tom Kuntz (published by Dove Audio.)

Harlan Ellison can also be heard as the voice of the insane god-computer AM on the recently released CD-Rom computer game, the best-selling I HAVE NO MOUTH, AND I MUST SCREAM. Though Mr. Ellison doesn't even own a computer, he has amazed the world of electronic entertainment by creating and implementing a cutting edge "ethical scenario" that one reviewer lauded as "A game that challenges both intelligence and wisdom, and in this longtime game player's experience, it stands practically alone in the gaming landscape."

In 1990, Ellison was honored by P.E.N. for continuing commitment to artistic freedom and the battle against censorship. He lives with his wife, Susan, inside the Lost Aztec Temple of Mars, in Los Angeles.



Harlan Ellison's 1992 novelette "The Man Who Rowed Christopher Columbus Ashore" was selected from among more than 6,000 short stories published in the U.S. for inclusion in the 1993 edition of THE BEST AMERICAN SHORT STORIES.

After three years in production, January 1995 saw the debut of Ellison's own ongoing, monthly comic book from Dark Horse called HARLAN ELLISON'S DREAM CORRIDOR. In its first year of publication the graphic narrative magazine garnered such overwhelming and unanimous rave reviews—and the original stories Ellison wrote for each issue won so many awards—the in August of 1996 the magazine was re-launched in bookstore format, with more pages, as HARLAN ELLISON'S DREAM CORRIDOR QUARTERLY.

"Chatting with Anubis", an original short story written especially for HARLAN ELLISON'S DREAM CORRIDOR (#4), won The Deathrealm Award for the Best Short Fiction of 1995 and the Bram Stoker Award for Superior Achievement in Short Fiction which was given out by the Horror Writers Association in June 1996. At the same awards ceremony, Harlan Ellison was also given the Lifetime Achievement Award.

And as Tom Snyder said on the NBC Tomorrow show: "An amazing talent; meeting him is an incredible experience."

Electronic Book '99

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September 21-22, 1999

Gaithersburg, MD

Carol Risher

Vice President Copyright and New Technology Association of American Publishers

www.aps.org

As AAP's Vice President for Copyright and New Technology, Ms. Risher is responsible for assisting AAP members in their efforts to move from print-based products to electronic products.

She is responsible for monitoring new technologies that affect publishers' markets and working with AAP members to promote development of pre-competitive standards such as the Digital Object Identifier (DOI) that facilitate Internet commerce. She served as AAP's Project Manager for the DOI development work and is currently project manager on a new prototype implementing an application of DOI. She works with the AAP's Enabling Technologies Committee on a variety of projects to manage digital content.

She is also responsible for initiatives to insure copyright protection for published works in all formats.

E-Book Security Assessment Report Card

Criteria	Description
Content From Publisher	· Is content delivered securely from publisher to digital text distributor (e.g., encrypted transmission)?
Content Storage	· Is content encrypted when initially loaded on server? · Are passwords required for system administration access? · Is the storage device protected by a firewall? · Is telnet/ftp access restricted? · Is the storage site physically secure?
Content Integrity	· Is a hash of the digital text file received from the publisher computed upon delivery and checked upon distribution to ensure contents have not been corrupted?
Content Distribution to Consumer	· Is the transmission to the customer encrypted (e.g., SSL)? · Is the contents encrypted uniquely for each customer before transmis -sion?
Content Key Protection	· Where are the customer's private keys generated and stored? · How are the keys protected while stored? · Is the content key encrypted uniquely for each customer? · Is the content key encrypted uniquely for each digital title purchased by a customer?
Content Secrecy	· Are industry standard encryption algorithms used that have been analyzed by the cryptographic community or are the algorithms custom-developed/ proprietary? · What is the key length used? · Are there safeguards against using a cryptographically weak key? · Have export restrictions considered when distributing encrypted content outside the U.S.A.?
Consumer Authentication	· Is there a strong system in place to verify the identity of a customer?
Consumer Privacy	· How are the customer's identity, financial data (e.g., credit card number and expiration), and passwords protected? · Is information collected about the customer's purchase transaction history? · Is customer notified prior to releasing information to another organization?
Bookstore Authentication	· Is there a strong system in place to allow the customer to verify the identity of a bookstore prior to purchasing content? · Is there a strong system in place to allow the publisher to verify the identity of a bookstore prior to sending new content?
Publisher Authentication	· Is there a strong system in place to allow the bookstore to verify the identity of a publisher prior to receiving new content?
Content Recovery Mechanisms	· Can the contents stored on the server be securely backed up and re -loaded?
Tamper-evident Reader Device	· Can the internals of the reader device be physically accessed without detection?
Web Server Security	· Are industry-accepted security practices established for protecting the system? · Are system software bug fixes and security bulletins tracked and incorpo -rated?
Software Updates	· Are documented procedures in place to assure software upgrades are properly tested for security functionality before installation?

	·	Are software upgrades available for the customer's PC and reader device?
	·	Will updates of third-party software (such as on a general-purpose device) affect the operational security of the PC or reader device?
Random Number Generator	·	Are random numbers generated using industry-accepted techniques?
	·	What are the variables used to seed the randomness?
	·	Have the entropy properties of the random number distribution been analyzed?
Reader Device Manufacturing	·	Is the manufacturing process inspected on a regular basis?
	·	How are the security features of the device verified prior to being sold?
	·	Is the manufacturing facility physically secure?
Detect Unauthorized Usage	·	How does the device react to someone attempting to use the device to view content obtained from another e-book vendor?
PC Usage As Intermediary	·	Is the content stored on the customer's PC before downloading to a reader device?
	·	Is the content encrypted while stored on the PC?
	·	Can the content be decrypted or decoded while residing on the PC?
	·	Is a password required to access or transmit the content?
Forensic Tracking	·	Are tools in place to assist in tracking attempted attacks?
	·	Is the content indelibly marked to identify the transaction when the content was purchased?
Industry Standard Formats	·	Are industry standard formats for rendering the content used or are the formats custom-developed/proprietary?
Industry Standard Protocols	·	Are industry standard communication protocols that have been analyzed for security used or are the protocols custom-developed/proprietary?
Accountability & Logging	·	How is the inventory of reader devices tracked?
	·	If content previously purchased by a customer is accidentally deleted, what is the process for replenishing the content?
I/O Ports on Reader Device	·	Can the content be downloaded from the reader device?
General Purpose Device	·	Do safeguards exist to prevent the use of debugging tools to circumvent the security features to view the content?
Lost or Stolen Reader Device	·	Can a found or stolen reader device be used by someone other than the owner, e.g., is a password required for access?
	·	What is the process for preventing misuse if a device is lost or stolen?
Documentation	·	Are all security designs and practices documented so they are accessible to system operators and may be vetted by others?
Cryptography Updates	·	Can the cryptographic software or firmware be upgraded so as not to be vulnerable to cracking of encryption methods in the future?
Partial Decryption on Device	·	Is the full text decrypted at one time or is only the currently viewed portion decrypted?
Encryption Strength/ Key Length	·	Are the employed cryptographic properties inherently weak with respect to the computational resources and time?

Electronic Book '99

"The Next Chapter"

September 21-22, 1999

Gaithersburg, MD

Dennis McNannay

VP, Product Development

Infinite Ink

www.iink.com

Dennis McNannay is the Vice President of Product Development for Infinite Ink. Active in software product development for over ten years, he is currently focused on developing a "trusted system" of technologies for publishing and vending eBooks via the Internet.

Prior to founding Infinite Ink, Mr. McNannay was Vice President of DataPak Software and oversaw the design and sale of core software/publishing components to some of the largest companies in the industry (e.g. IBM, US West, Apple etc.). He is a member of both the OpeneBook and EBX standards committees and is committed to developing technologies that allow eBooks to scale to even the simplest electronic devices/readers. Prototype versions of Infinite Ink's eBook publishing and DocLoc™ distribution system have been highlighted in Seybold Reports, David Coursey's Internet Showcase and most recently at InfoWorld's Demo '99 tradeshow.

Dennis has spoken before the Library of Congress, various AAP committees/events and, most recently, at the Seyold Spring and Fall eBook panel discussions. He is considered a leading authority on Digital Rights Management for digital content.

The eBook Purchase

From The Customer's Perspective
(Draft, Sept, 10, 1999)

Dennis McNannay
V.P., Product Development

Who are your customers?

- Who's buying eBooks now?
  - Technical & Professional Users
  - Technical Internet User
  - Early Adopters
    - Typically these users have an above average background with using computers, are accustomed to using digital content and/or have experience using the Internet.
- What will be required to expand this base to levels a broader range of publishers will consider commercially viable?

Characteristics of a Consumer Friendly System

- **Portable Content**
  - PC's, Mac's, PDA's, CE's and other multi-function devices
  - Simple, Low bandwidth usage transaction cycle
- **Server free usage & super distribution**
  - Connection only for purchasing or changing rights
- **Who stands behind the customer**
- **Respect user privacy**

Portable Content

- **How customers does your system include?**
  - Market size = Platform support.
- **How big is the "whole package"?**
  - How many megabytes of viewer, eBook, ecommerce and other stuff does the person hae to download to buy their first book.
- **Can the content be easily transferred to other machines I own?**
- **Elegant Degradation**

Simple Transaction Cycle

- **Minimum number of steps yields maximum number of customers**
  - Four steps or less
  - Each step should confirm or re-enforce that process is proceeding normally. It should also identify the next step
- **No waiting for product**
  - Content should begin downloading as soon as possible
  - Tech support on a transaction problem should be immediate

Server free usage & super-distribution

- Use content production tools and procedures that allow publishers to target multiple eBook platforms from a single master base of raw content.
  - XML will be the long term solution to record the intelligence to allow content to adapt to its environment.
- Difficult cross-platform issues include:
  -Tables, columns, graphics resolution
- Future challenges:
  - Movie clips, sound files, virtual reality simulations, greater handicapped access

Who stands behind the customer?

- How long do customers own content and how is it recovered.
  - What happens when someone loses their smart card or their digital file gets corrupted
  - What does it mean to allow a used book market in digital goods like eBooks. Do we need an Ebay for eBooks?
  - How are consumers going to track where they purchased their library of eBooks when the time comes.
- What happens when retailers go out of business?
  - Customers assume when they buy merchandise someone will provide long-term support. We think this will be a critical issue for publisher and distributor to negotiate from the beginning.
- Ebook authors, publisher, distributors and retailers must

Respect User Privacy

- **Balance desire for market/user data with the user's privacy concerns.**
  - Content usage tracking
  - Redistribution audit trails
- **Who's authorized to share customer data with whom?**
  - Should retailers share customer data with publishers
  - How do you manage customer data rights across international boundaries.

Where do we go from here?

- **Success of eBook market contingent on satisfaction with total eBook experience?**
- **Author, publishers, distributors and retailers need to work together to satisfy the Internet customer.**
- **Infinite Ink will form a working committee to study usage, privacy and licensing issues key to the success of the eBook market.**

Len Kawell

President Glassbook

www.glassbook.com

Len Kawell, the President of Glassbook, was one of the original three founders of Iris Associates, where he co-designed Lotus Notes and which he co-managed for the last thirteen years.

Before Iris, Len worked at Digital Equipment, where he was a member of the original team that developed the VAX/VMS operating system, the MicroVAX computer, and VAX Notes and VMS Mail. Len has a B.S. in Computer Science from the University of Illinois.

Electronic Book '99
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Dr. Jonathan Schull

Founder & Chief Technology Officer

www.softlock.com

Dr. Jonathan Schull is the inventor of the SoftLock.com Solution and author of its issued and pending patents on information commerce. With an undergraduate degree in psychology from Reed College and a Ph.D. in biological psychology from the University of Pennsylvania, Schull has spent almost 28 years exploring behavior, evolutionary psychology, and the spread of information through intelligent networks. These interests "seeded" his work on the propagation of digital goods through the Internet, beginning with some laboratory software he wrote for his animal behavior research. Schull came up with a system that allowed researchers and their students to try, buy, and redistribute an instantly purchaseable but non-pirateable software product – and the fundamental concept behind Softlock.com was born.

In 1992, Schull gave up a tenured position at Haverford College, founded SoftLock.com and wrote the company's seminal patent. An active entrepreneur, public speaker and inventor, he also co-founded "Downtown Anywhere" (www.awa.com), the Internet's first virtual city and created the First Virtual Bank of Downtown Anywhere, one of the web's very first micro-payment systems.

Schull is an internationally recognized authority and lecturer on intellectual property protection, information commerce, and the new information economy, and the nature of intelligence in biological and artificial systems. In addition to having appeared on NBC's Prime Time Live for work on dolphin cognition, Dr. Schull has written numerous

articles related to the evolution and spread of adaptive knowledge and behavior, including: "Are Species Intelligent" (Behavioral and Brain Sciences, 1990), "The Uncertain Response in Humans and Animals" (Cognition, 1997); and "William and the World Wide Web", one of several articles and book chapters he has published about William James, the great American psychologist and philosopher.

Dr. Schull earned a Master's degree and a Ph.D. in biological psychology from the University of Pennsylvania. He has received two coveted fellowships from the National Science Foundation and the National Institute of Mental Health, followed by an impressive list of more than a dozen other fellowships, grants, and awards. A founder of the General Evolution Research Group and former Associate Editor of World Futures: the Journal of General Evolution, Dr. Schull now shuttles regularly between his home in Rochester, NY and SoftLock.com's headquarters in Maynard, Massachusetts.

SoftLock

Second Annual Workshop: "The Next Chapter"

Electronic Book '99

September 21-22, 1999

National Institute of Standards and Technology

Gaithersburg, Maryland

E-books and DRM:
Which Digital Rights Need Managing Most?

E-books

SoftLock

- A new class of reading devices—optimized for the reading experience
- A new vehicle for information commerce
- A sales and distribution channel
- "Cyber-training-wheels" for e-publishers and e-consumers

2

Digital Rights Management

SoftLock

- Ensuring livelihoods for creators of valuable digital goods
  - This *can* be extremely complicated…
  - …but it shouldn't be!

3

U.S. Patent # 5,509,070

SoftLock

Filed 1992. Issued 1996.

1. Lock a particular digital product to a particular context.
   - Content:
     - Documents
     - Music
     - Video
     - Software
     - Multimedia
     - Java
   - Context:
     - Computer
     - Biometrics
       - Voice
       - Fingerprint
     - Digital Certificates
     - Smart Cards

2. Vend purchase keys for content in that particular context

4

Company History: Seven Years in the Real World

SoftLock

- SoftLock Services 1992
- SoftLock.com (OTCBB: SLCK) July 1998
- "On the Ramp"
- September '99 Launch version 2.0

Inso Corporation
John Wiley & Sons
McGraw-Hill Companies
Zip-It Software

5

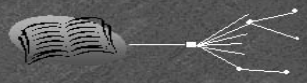
Business Model, Circa 1992

SoftLock

6

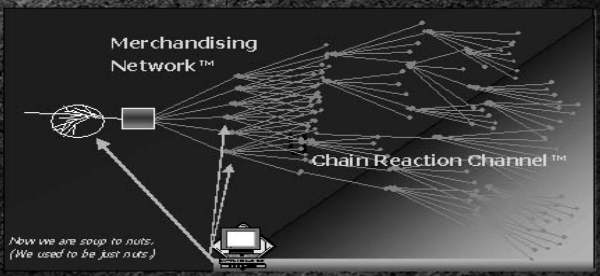
Lessons Learned

- People *will* pay good money for good info
- Digital goods need digital markets
- Digital publishers need help



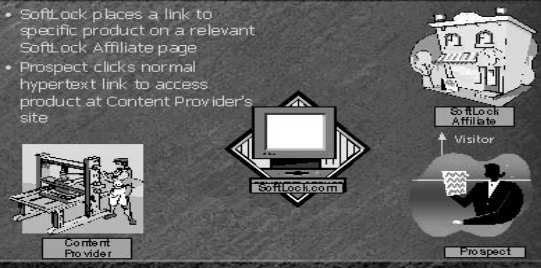
- It's the economics!
  - without sales, royalties and rights are irrelevant.

Version 2.0



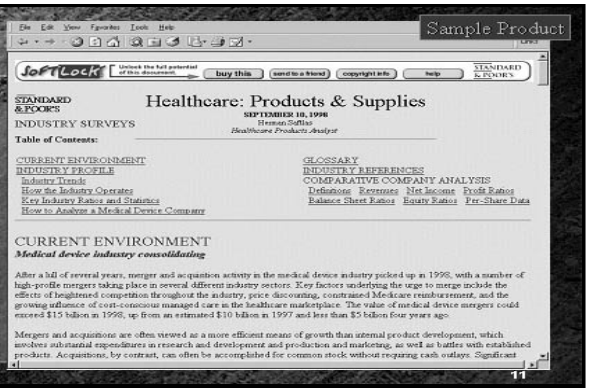
The Merchandising Network

- SoftLock places a link to specific product on a relevant SoftLock Affiliate page
- Prospect clicks normal hypertext link to access product at Content Provider's site



SoftLock Affiliate Site

Sample Product



Invitation To Purchase Product and to pass it on!

We Have Three Stakeholders

Serve all,
or you will serve
none.

13

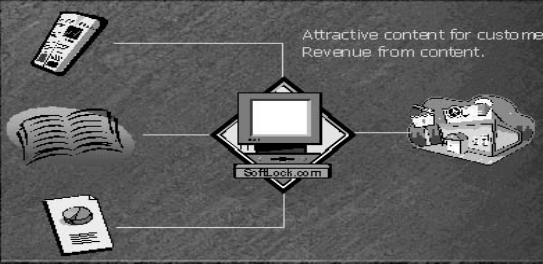
The Content Provider's Perspective...

Prime placements for
persistently-protected products
passed from prospect to
prospect.

14

The Affiliate's Perspective...

Attractive content for customers.
Revenue from content.



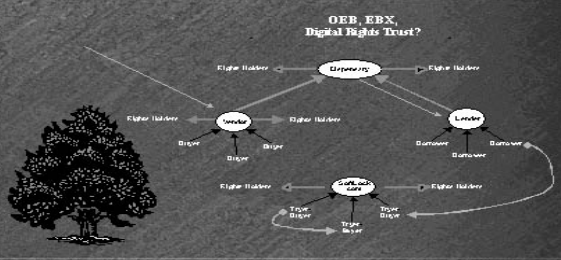
15

The Consumer's Perspective...

Valuable content...
readily available,
instantly purchaseable.

16

A Possible Future



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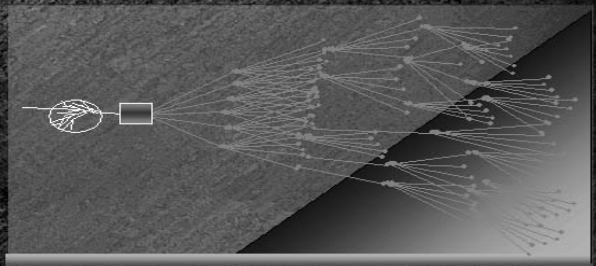
Every Stakeholder is a Rights Holder



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